

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[The Mining Journal is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.]

No. 2268.—Vol. XLIX.

LONDON, SATURDAY, FEBRUARY 8 1879.

[WITH SUPPLEMENT.] PRICE SIXPENCE.
PER ANNUM, BY POST, £1 4s.

MR JAMES H. CROFTS, STOCK AND SHARE BROKER
AND MINING SHARE DEALER.
No. 1, FINCH LANE, CORNHILL, LONDON, E.C.
ESTABLISHED 1842.

BUSINESS transacted in all descriptions of MINING Stocks and Shares (British and Foreign), Consols, Banks, Bonds (Foreign and Colonial), Railways, Insurance, Assurance, Telegraph, Tramway, Shipping, Canal, Gas, Water, and Dock Shares, and all Miscellaneous Shares.
Business negotiated in Stocks and Shares not having a general market value.

ACCOUNTS OPENED FOR THE FORTNIGHTLY SETTLEMENT
A Daily Price List, issued at 5 P.M., giving latest Quotations up to close of Market, and every Friday a general List containing closing prices of the week.
MINES INSPECTED.

BANKERS: CITY BANK, LONDON; SOUTH CORNWALL BANK, ST. AUUSTELL.

SPECIAL DEALINGS in the following, or part:—
20 Botts y Coed, 25 Herodfoot, 150 Pestarena, 4s. 6d.
20 Chapel House, £2 6s. 3d. 25 Hultafall (off. wntd.) 100 Parys Mount, 6s.
20 Chontales, 11s. 6d. 25 Javali, 4s. 3d. 45 Richmond, £9 3/4.
40 Colorado, 31s. 38 Leadhill, £1 3/4. 40 Roman Grav., £6 11 3/4
25 Devon Consols, 30s. 50 Llanrwst, 5s.
20 East Van, £1 3/4. 25 Morfa Du, 16s. 80 Tankerville, £2 3s. 9d.
20 Eberhardt, £2 3/4. 10 Pateley Bridge, £1 3/4. 5 West Chiverton, £3
65 Flagstaff, 6s. 9d. 15 Pandora, 8s. (call paid).
50 Glynn, 100 Penrithall, 3s.

* * SHARES SOLD FOR FORWARD DELIVERY (ONE, TWO, OR THREE MONTHS) ON DEPOSIT OF TWENTY PER CENT.

RAILWAYS—SPECIAL BUSINESS.

FOREIGN BONDS—SPECIAL BUSINESS.

Fortnightly accounts opened on receipt of the usual cover.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.
ESTABLISHED 1842.

MR. W. H. BUMPUS, STOCK AND SHARE BROKER,
AND MINING SHARE DEALER,
44, THREADNEEDLE STREET, LONDON, E.C.
ESTABLISHED 1867.

BUSINESS transacted in STOCK EXCHANGE SECURITIES and MISCELLANEOUS SHARES of every description.
RAILWAYS, BANKS, FOREIGN AND COLONIAL BONDS, TRAMWAYS, TELEGRAPHS, and all the LEADING INVESTMENTS.
Accounts opened for the fortnightly settlement.
A Stock and Share List free on application.

MR. BUMPUS has SPECIAL BUSINESS in the undermentioned:—

50 Almada, 3s. 9d.	70 Flagstaff.	75 Parys Mount, 6s.
25 Birdseye Creek, 13s.	20 Frontino, £2 8s. 9d.	25 Pateley Bridge.
25 Blue Tent.	10 Great Lacey, £15 1/2.	100 Pestarena, 3s. 6d.
100 Chontales, 9s. 6d.	25 Hultafall.	100 Penrithall, 2s. 9d.
2 Cape Copper, £ 9 1/4.	20 Herodfoot.	10 Roman Grav., £6 8 9
2 Carn Brea, £28 3/4.	100 Javali, 5s. 6d.	20 Richmond, £9 6s. 3d.
50 Colorado, 29s. 6d.	50 Kapanga, 12s.	5 So. Frances.
15 Devon Consols.	25 Leadhill, 33s.	25 Tankerville, £2 2s.
50 Don Pedro, 21s.	100 Llanrwst.	60 Tyn y Ffon.
3 Dolcoath, £23 3/4.	30 Marke Valley, 8s. 9d.	5 Van, £16 18s. 3d.
40 East Caradon, 3s. 6d.	25 Mellanear, £4 3s. 9d.	30 Wh. Grenville, £2 16
5 East Pool.	20 New Quebrada.	20 Wheel Kitty.
25 Eberhardt, £2 13s. 9d.	10 Port Phillip, 10s. 9d.	15 Wh. Peavor, £7 3/4.
30 East Van, 36s. 6d.	30 Pandora, 10s.	

OFFERS WANTED for the following Shares:—70 Chapel House Colliery (£5 each, fully paid); 10 Yarmouth Tramway (£10 each, fully paid); 10 D'Eresby Consols; 50 Wheel Crebor; 50 East Chiverton; 50 North Lacey; 20 Wye Valley; 30 St. Harmon; 50 South Cwmystwith; 50 Antioquia (Frontino); 25 Gold Run.

* * DON PEDRO.—A good business has been done in these shares during the past week. Present price, 19s. to 21s. The market closes firm, with an upward tendency.

IMPORTANT.—Owing to the general depreciation which has taken place during the past few months, many really SOUND STOCKS and SHARES may now be secured on very advantageous terms. Investors should, therefore, embrace the present favourable opportunity of purchasing before the inevitable reaction sets in.

A complete "List of Investments" for the present month (containing latest prices and a large amount of useful information) may be obtained free on application to Mr. BUMPUS.

SPECIAL BUSINESS, at close prices, in the SHARES of all the principal HOME and FOREIGN MINES.

WILLIAM HENRY BUMPUS, SWORN BROKER.

Offices: 44, Threadneedle Street, London, E.C.

BANKERS—The NATIONAL PROVINCIAL BANK OF ENGLAND, E.C.

MESSRS. JONES AND HOUSTON, 25, CROSBY HALL
CHAMBERS, LONDON, E.C.
STOCK AND SHARE DEALERS.

DON PEDRO (GOLD).—THESE SHARES CONTINUE TO ADVANCE, being now 21s., and a further great rise appears inevitable judging from the nature of the last advances. The lode has been intersected very rich in depth, containing on the average 5 ozs. of gold to the ton.

RYDALUN.—This is the MOST PROMISING LEAD MINE in FLINTSHIRE. They are returning 50 tons of ore monthly from drifts alone at a profit of between £200 and £400. The shares can hardly fail to have a great rise.
Bankers: London and Provincial.

MR. E. J. BARTLETT, BRITISH AND FOREIGN STOCK
AND SHARE DEALER,
No. 30, GREAT ST. HELEN'S, LONDON, E.C.

Post free, One Shilling, Eleventh Edition,

"HOW TO INVEST

Forwarded on application.

MR. THOMAS THOMPSON, JUN., STOCK BROKER,
1, PALMERSTON BUILDINGS, BISHOPSGATE STREET,
LONDON, E.C.

MR. THOMPSON transacts business in every species of Stock Exchange and Mining securities.
MR. THOMPSON affords reliable information to investors, and can give, when desired, a list of first-class Stocks and Shares, yielding 4 to 10 per cent. dividends upon present prices.—MR. THOMPSON'S weekly Circular may be had on application.

MR. GEORGE BUDGE, STOCK AND SHARE DEALER
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ALL BUSINESS TRANSACTED FREE OF ANY CHARGE FOR COMMISSION.

Notice to Investors and Speculators.

MR. BUDGE has SPECIAL BUSINESS in:—
100 Almada, 3s. 9d. 100 Exchequer, 4s. 40 Monydd Gerddu.
40 Birdseye Creek, 13s. 3d. 25 Grogwinion, £2 3/4. 100 Prince of Wales.
100 Bodidris. 60 Glenroy, 12s. 9d. 15 Phoenix, £3 3/4.
100 Cambrian. 30 Gawton, 6s. 6d. 30 Red Rock.
30 Chapel House, £2 10 9 5 Great Lacey, £16 1/2. 120 Tamar Silver lead and
20 Cakemore, £3 3/4. 60 Hultafall. Fluor-spar.
2 D'Eresby Cons., £7 3/4. 200 Kapanga. 10 Van, £16 1/2.
35 Devonport and Tiver- 50 Llanrwst. 20 West Chiverton.
ton Brewery. 25 Marke Valley, 10s. 6d. 50 Wheel Crebor.
100 Don Pedro, 11s. 5 Minera, £2 3/4. 50 Wheal Peavor, £6 3/4.
4 Dolcoath, £24 3/4. 150 North Lacey. 40 Wye Valley.
65 East Caradon, 5s. 9d. 100 Parys Mount, 6s. 9d.

BUYERS or SELLERS of any of the above, or holders of any Stocks or Shares not readily marketable, will do well to apply to Mr. BUDGE.
SPECIAL BUSINESS in Foreign shares as Buyer or Seller.

BRITISH AND FOREIGN MINES.

SHAREHOLDERS and INVESTORS desirous of PURCHASING or SELLING SHARES in COPPER, TIN, LEAD, GOLD, or SILVER MINES can do so at market prices, and obtain information regarding the same on personal application, or by letter, of—

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54, OLD BROAD STREET, LONDON, E.C.

Telegraphic Messages punctually attended to.

MR. ALFRED E. COOKE,
STOCK AND SHARE DEALER,
76, OLD BROAD STREET, LONDON, E.C.
ESTABLISHED 1853.

1879.—FOR PROFITABLE SELECTIONS.
INVESTORS should read the NEW YEAR'S NUMBER of the "INVESTORS' GAZETTE." Post free Three Stamps; quarterly subscription, 2s. 6d.

ALFRED E. COOKE, 76, OLD BROAD STREET, LONDON.
ESTABLISHED 1853.

MR. JAMES STOCKER, STOCKBROKER,
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MR. STOCKER transacts Business in all Stock Exchange Securities.
(Established 1848.)

BUSINESS in the FOLLOWING:—
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Chontales. Last Chance. Van.
East Van. Pateley Bridge. Wye Valley.
Eberhardt. Roman Gravels. West Wye Valley.
Great Lacey. Richmond. Wheal Peavor.
Gas Light and Coke. South Frances. Wheal Grenville.
General Credit. Tankerville. West Chiverton.
Hultafall. Telegraph Construction. Yorke Peninsula.
BANKERS: LONDON AND WESTMINSTER.

FERDINAND R. KIRK, 5, BIRCHIN LANE,
LONDON, E.C.

Has BUSINESS in:—
Colorado. Leadhill. Richmond.
Don Pedro. Llanrwst. Sierra Buttes.
Eberhardt. Port Phillip. St. Harmon.
Gold Run. Pestarena. Wye Valley.

"THE WEEK."—A SEPARATE EDITION from that which appears in the Mining Journal is published every Wednesday evening, containing "Notes and Hints on the Stock Markets," with Closing Prices. May be had on application.
Bankers: London and Westminster, Lothbury.

MR. J. ROSEWARNE, 3, COTHALL BUILDINGS,
LONDON, E.C.

Has BUSINESS in:—
Bettw-y-Coed. Flagstaff. Parys Mountain.
Cakemore. Gawton. Richmond.
Colorado. Great Lacey. Roman Gravels.
D'Eresby Mountain. Grogwinion. Van.
Devon Consols. Herodfoot. West Chiverton.
Don Pedro. Hultafall. Wheel Crebor.
Eberhardt. Llanrwst. Wheal Grenville.
Money advanced on Mining Shares, or any other good securities.

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8, DRAPER'S GARDENS, LONDON, E.C.

Bankers: The National Provincial Bank of England.

MR. EDWARD BREWIS, STOCK AND SHARE DEALER,
15, GREAT ST. HELEN'S, LONDON, E.C.

Buyers or Sellers of Mine Shares, Railways, Foreign Bonds, and Miscellaneous descriptions of Stock and Shares may send their orders, and have their business promptly attended to for immediate cash, or the fortnightly account current, or for a deferred settlement.
Bankers: National Provincial Bank of England.

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ESTATE AGENT—SHAREDEALER.

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I have been long acquainted with the principal Coal and Ironworks in the North, with the Slate Quarries in North Wales, and for many years was Chief Engineer of the Thurston Mines, Works, and Railway in Spain.

COALS.

CONTRACT DEPARTMENT, ADMIRALTY, WHITEHALL, S.W.,
5TH FEBRUARY, 1879.

TENDERS will be RECEIVED until Two o'clock on Tuesday, the 25th February, for the SUPPLY to Her Majesty's Dockyards, Dockyard Extension Works, Victualling Yards, Royal Marine Barracks, Royal Naval Hospitals, &c., of—

LAND ENGINE, FURNACE, METAL MILLS, SMITHERY, BRICK-BURNING, GAS, BAKERY, AND HOUSEHOLD COALS;
AND OF COKE.

The contracts are for specific quantities, and for forward delivery within stated periods.

TENDERS may be for the WHOLE or ANY PORTION of the quantities required.

Their Lordships do not bind themselves to accept the lowest or any Tender, and they reserve to themselves the power of accepting any part of a Tender.

Forms of Tender, containing all particulars, may be obtained on personal application at this office, or by letter, addressed—Director of Navy Contracts, Admiralty, Whitehall, S.W.

Tenders should be addressed—Director of Navy Contracts, Admiralty, Whitehall, S.W., and marked in the left-hand corner "Tender for Coals."

FRANCIS W. ROWSELL, Director of Navy Contracts.

ARMY CONTRACTS.

COAL AND KINDLING WOOD.

TENDERS will be RECEIVED, until Twelve o'clock noon, on Tuesday, the 24th day of February next, by the Commissariat Officers in charge of the undermentioned Districts, for the SUPPLY of COAL and KINDLING WOOD, for Military Services, for Twelve Months, from 1st April, 1879.

NORTH BRITAIN DISTRICT Commissariat Office, 1, Castle-terrace, Edinburgh.
NORTHERN DISTRICT Commissariat Office, Fishergate, York.
SOUTHERN DISTRICT Commissariat Office, Colewort Barracks, Portsmouth.

WESTERN DISTRICT Commissariat Office, 35, George st., Devonport.
EASTERN DISTRICT Commissariat Office, Abbey Field, St. John's Green, Colchester.

SOUTH EASTERN DISTRICT Commissariat Office, 10, Esplanade, Dover.

WOOLWICH DISTRICT Commissariat Office, Royal Artillery Barracks, Woolwich.

CHATHAM DISTRICT Commissariat Office, the Barracks, Chatham.

HOME DISTRICT Commissariat Office, Horse Guards, Whitehall, London.

ALDERSHOT Commissariat Office, South Camp, Aldershot.

CHANNEL ISLANDS.

ALDERNEY Commissariat Office, Alderney.

GUERNSEY Commissariat Office, Guernsey.

JEERSEY Commissariat Office, Jersey.

Forms of Tender and Conditions of Contract may be obtained on application at the above-named Commissariat Offices, by letter addressed to the Senior Commissariat Officer, or in person between the hours of Ten and Four o'clock, and no Tender will be entertained unless made upon the form so obtained.

The Tenders must be properly filled up, signed, and dated; and no Tender will be noticed unless delivered in time at the District Office, under closed envelope, marked "Tender" on the outside.

EVAN COLVILLE NEPEAN, Director of Army Contracts.

War Office, 5, New-street, Spring Gardens, S.W., 4th February, 1879.

MR. CHARLES THOMAS,
MINING AGENT, STOCK AND SHARE DEALER,
3, GREAT ST. HELEN'S, LONDON, E.C.

MR. ALFRED THOMAS,
MINING AGENT, AND STOCK AND SHARE DEALER,
10, COLEMAN STREET, LONDON, E.C.

MR. EDWARD ASHMEAD, 62, CORNHILL, LONDON,
LONDON MINE AGENT, ACCOUNTANT, AND AUDITOR.

MR. W. MARLBOROUGH, STOCK AND SHARE DEALER,
29, BISHOPSGATE STREET, LONDON, E.C. (Established 22 Years)
can sell the following SHARES, at prices annexed:—

100 Aberdunant.	20 Eberhardt, £3 15s.	50 Parys Mountain, 6s.
70 Argentine, 4s. 3d.	50 Exchequer, 4s.	130 Pateley Bridge, 22s. 6d.
50 Bodidris.	10 East Caradon, 3s. 3d.	100 Pestarena, 4s.
50 Birdseye, 12s. 6d.	20 Frontino, £2 8s. 9d.	100 Port Phillip, 11s.
25 Cakemore, £3 12s. 6d.	30 Flagstaff, 7s. 6d.	15 Richmond, £9 5s.
100 Chontales, 11s.	20 Gorsead & Merl, £2 3/4.	50 Rookhope, 4s.
25 Chapel House, £2 8s. 6d.	20 Hultafall, £1 8s. 9d.	10 Roman Gravels, £6 3/4
20 Colorado, 12s. 6d.	25 Last Chance, 8s. 9d.	50 So. Roman Grav., 3s. 6d.
2 D'Eresby Mount, £40	25 Leadhill, £2 1s. 3d.	10 Tankerville, £2 5s.
60 Don Pedro, £1 1s.	5 Minera, £10.	40 Tyn-y-Fron.
20 East Van, £1 3/4.	10 Monydd Gerddu, £2 3/4.	100 Yorke Penin., 3s. 8d.
	40 N. Zca. Kap., 12s. 6d.	

Shares bought and sold at net prices. Telegrams promptly attended to.
Specially Recommended for an early rise in price;—Bodidris, Lead Era, Eberhardt, and Don Pedro.

FOR SALE, the WHOLE or PART:—

50 East Van, £1 3/4.	20 Hornachos, £9 1/2.	100 Santa Barbara, £1 12 6
100 Bettw-y-Coed, £1 3/4.	30 Gorsead & Merlyn, £2 3/4.	2 Rhydalun, £41.
100 Glynn, 10s.	23 3/4.	120 Don Pedro North del
50 Hultafall, £2 2s. 6d.	20 Great Holway, £4.	Rey, £1.

Address, H. WILKINS and Co., 5, Heybourne Villas, Tottenham.

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LLANRWST LEAD MINE (LIMITED).
FOR SALE, ONE HUNDRED SHARES, in ONE LOT, for £110, or a little less might be accepted if AN OFFER WERE MADE.
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FOR SALE, FIFTY BODIDRIS LEAD MINE, at 12s. 6d.;
20 RUBY CONSOLIDATED, at 7s. 6d.; 25 CHAPEL HOUSE COL-
LIERY, at £2 7s. 6d., all fully paid up, and limited per share, cash.
Address, Mr. C. GENTIL, 36, Christie-road, Caseland-road, E.

FOR SALE.—A DISCOVERY FOR EMBALMING THE
DEAD. The whole body is preserved as when it died. Witnesses will testify to it.
Address, "A. C.," 23, Colombarie, St. Helier's, Jersey.

CAMPION'S MAP OF COLLIERIES, IRON, TIN, AND
COPPER WORKS, RAILWAY STATIONS, AND DOCKS, in the
MINERAL DISTRICT OF SOUTH WALES. Size, 3 ft. 9 in. by 2 ft. 8 in.
Mounted and varnished on roller, or in convenient book form, price 21s.
Address, CHARLES CAMPION, Neath.

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Has had considerable experience in METALLIC MINING in CORN-
WALL and the NORTH OF ENGLAND; also 15 years on the Continent. Speaks
English, French, German, and Spanish, and has had charge of mines for many
years. Practically acquainted with the most modern dressing apparatus, the
most economical pumping and winding engines, boring machines, smelting, and
general steam and water appliances. Inspections undertaken; plans of mines
and assays carefully executed. Unexceptionable references.
Address, Mr. NANCE, 22, Stanley-street West, North Shields, Northumberland.

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AND CIVIL ENGINEER, U.S. MINERAL SURVEYOR FOR UTAH

AND IDAHO. NOTARY PUBLIC.

Geological examinations; reports on mining properties; surveys mines, rail
roads, and canals, and superintends the workings of the same. Prepares esti-
mates and plans for opening and working mines. Expert on mining questions
before the Courts.

Address, "P. O. Box 1137," Salt Lake City, Utah.



PARIS EXHIBITION, 1878.



GOLD AND SILVER MEDALS AWARDED for Steam-Engines & Boilers, also the Special Steam Pump, with Holman's Condenser & Compound Pumping Engine.

TANGYE BROTHERS AND HOLMAN,

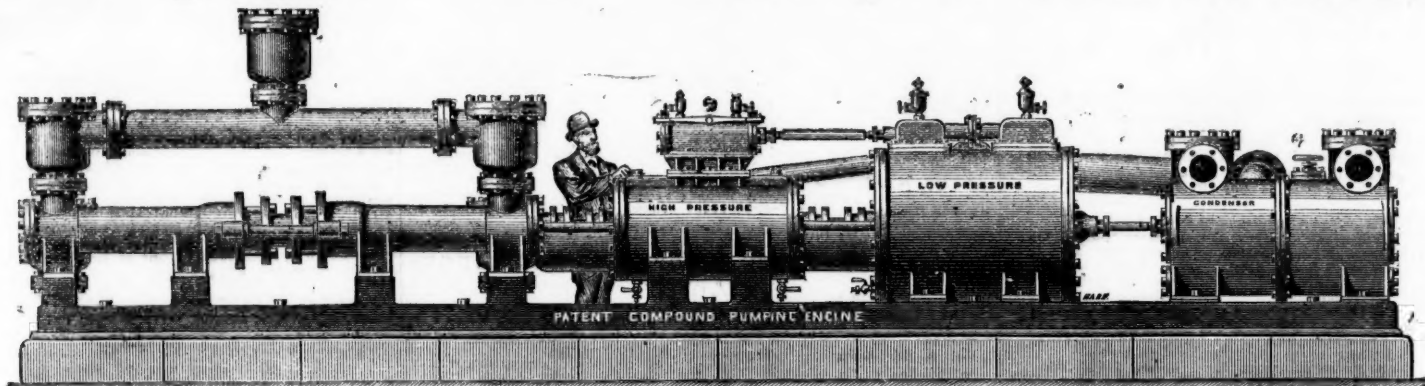
HYDRAULIC AND GENERAL ENGINEERS,

CORNWALL HOUSE, 35, QUEEN VICTORIA STREET, LONDON, E.C.,

AND BIRMINGHAM, (TANGYE BROTHERS), CORNWALL WORKS, SOHO.

THE "SPECIAL" DIRECT-ACTING COMPOUND PUMPING ENGINE

For use in Mines, Water Works, Sewage Works, And all purposes where Economy of Fuel is essential.



THE "SPECIAL" DIRECT-ACTING COMPOUND PUMPING ENGINE, WITH AIR-PUMP CONDENSER.

After several years of successful application for all purposes to which steam-driven pumps can be applied, THE "SPECIAL" STEAM PUMP STILL MAINTAINS THE FIRST POSITION IN THE MARKET, notwithstanding that it alone—of all direct-acting pumps—has been subjected to the great variety of severe tests that must be encountered in such a period of time. Some valuable improvements have been suggested in the course of a long experience, and their adoption has rendered the apparatus at once

THE SIMPLEST AND MOST CERTAIN IN ACTION.

The illustration shows an extension of the principle of this Pump to a Compound Steam Pumping Engine, by which the economical advantages resulting from the expansion and condensation of steam are very simply and effectively obtained. The steam after leaving the high-pressure cylinder is received into and expanded in the low-pressure cylinder, and is thus used twice over before being exhausted into the condenser or atmosphere. The Engine combines simplicity, certainty of action, great compactness, fewness of parts, and consequent reduction in wear and tear.

Several thousands of the "Special" Steam Pumping Engines, with high-pressure cylinders only, are in use in British and Foreign Mines, Water Works, &c.,—and for confined situations, or where Engines of a comparatively small size only are necessary, they will still meet all requirements—but their application will be very largely increased, since it has been found practicable to embrace the important features of expanding and condensing the steam, so that increased power may be obtained, and the consumption of fuel greatly economised.

THE "SPECIAL" DIRECT-ACTING COMPOUND STEAM PUMPING ENGINE is the most simple appliance for deep mine draining and general purposes of pumping ever practically developed, and the first cost is very moderate compared with the method of raising water from great depths by a series of 40 to 50 fathom lifts. No costly engine-houses or massive foundations, no repetition of plunger lifts, ponderous connecting rods, or complication of pit-work are required, while they allow a clear shaft for hauling purposes.

SIZES AND PARTICULARS.

Diameter of High-pressure Cylinder.....In.	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
Ditto of Low-pressure Cylinder.....In.	14	14	14	18	18	18	18	21	21	21	21	24	24	24	24
Ditto of Water Cylinder.....In.	4	5	6	5	6	7	8	6	7	8	10	7	8	10	12
Length of stroke.....In.	24	24	24	24	24	24	24	24	24	24	24	36	36	36	36
Gallons per hour approximate.....	3900	6100	8800	6100	8800	12,000	15,650	8,800	12,000	15,650	24,450	12,000	15,650	24,450	35,225
Diameter Suction and Delivery.....In.	3	3½	4	3½	4	5	6	4	5	6	8	5	6	8	9
Diameter High-pressure Steam Inlet.....In.	1½	1½	1½	1½	1½	1½	1½	2½	2½	2½	2½	2½	2½	2½	2½
Diameter Low-pressure Steam Exhaust.....In.	1½	1½	1½	1½	1½	1½	1½	2½	2½	2½	2½	2½	2½	2½	2½
Height in feet water can be raised with 40 lbs. pressure per square inch in cylinder.....	360	330	160	360	250	184	140	360	264	202	130	360	275	175	122
Ditto ditto ditto—with Holman's Condenser...	480	307	213	480	333	245	187	480	352	269	173	480	367	234	162
Ditto ditto ditto—with Air-pump Condenser...	600	384	267	600	417	306	335	600	440	337	216	600	459	203	203

CONTINUED.

Diameter of High-pressure Cylinder.....In.	16	16	16	16	18	18	18	21	21	21	24	24	24	30	30
Ditto of Low-pressure Cylinder.....In.	28	28	28	28	32	32	32	36	36	36	42	42	42	52	52
Ditto of Water Cylinder.....In.	8	10	12	14	8	10	12	14	10	12	14	10	12	14	14
Length of stroke.....In.	36	36	36	36	48	48	48	48	48	48	48	48	48	48	48
Gallons per hour approximate.....	15,650	24,450	35,225	47,950	13,650	24,450	35,225	47,950	24,450	35,225	47,950	24,450	35,225	47,950	47,950
Diameter Suction and Delivery.....In.	6	8	9	10	6	8	9	10	8	9	10	8	9	10	10
Diameter High-pressure Steam Inlet.....In.	2½	2½	2½	2½	3	3	3	3½	3½	3½	4	4	4	5½	5½
Diameter Low-pressure Steam Exhaust.....In.	3	2	3	3	3½	3½	3½	4	4	4	5	5	5	6½	6½
Height in feet water can be raised with 40 lbs. pressure per square inch in cylinder.....	360	230	160	118	456	292	202	149	397	276	202	518	360	264	502
Ditto ditto ditto—with Holman's Condenser...	480	307	213	154	603	389	269	198	528	363	269	691	480	352	750
Ditto ditto ditto—with Air-pump Condenser...	600	384	267	191	750	486	337	248	660	450	337	864	600	440	937

PRICES GIVEN ON RECEIPT OF REQUIREMENTS.

Any number of these Engines can be placed side by side, to work in conjunction or separately as desired, thereby multiplying the work of one Pump to any extent.

NORTH OF ENGLAND HOUSE ... TANGYE BROTHERS, ST. NICHOLAS BUILDINGS, NEWCASTLE-ON-TYNE.
SOUTH WALES HOUSE... TANGYE BROTHERS AND STEEL, Tredegar Place, NEWPORT. Mon.; and Exchange Buildings, SWANSEA

Lectures on Practical Mining in Germany.

CLAUSTHAL MINING SCHOOL NOTES.—No. CVII.*

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The publication of these Lectures is unavoidably suspended for two or three weeks. They will then be resumed and continued regularly.

THE TUNGSTEN INDUSTRY.

An interesting account of the application of tungsten in the manufacture of iron, steel, gun metal, brass, and german silver has been prepared by Mr. THOMAS WILLIAMS, of Cannon-street, who is at present introducing tungsten and its salts to the notice of metallurgists. Manufacturers, although fully aware of the important and desirable results obtainable by the use of different preparations from wolfram, have naturally hesitated to use the raw material, owing to the uncertainty of the effects produced. The investigations, however, of Berzelius, Wöhler, Laurent, Marguerite, and in our own days those of Riche, Bernoulli, and others have caused the valuable properties of the tungstates to be more widely recognised. The continental manufacturers have, he says, for a considerable time been largely using it, and the rapid development of their steel and iron trade has attracted the attention of the English manufacturers to the necessity of obtaining cheaper and improved productions. The experiments made by the use of wolfram with steel have hitherto not been attended with perfectly reliable results, owing to the mineral being either used in its raw state or imperfectly prepared. It is well known that wolfram varies considerably in the amount of tungsten contained in it, and also that it contains in uncertain quantities several deleterious substances and impurities noxious to the quality of steel, such as arsenic, sulphur, phosphorus, &c.; it, therefore, frequently occurs that many steels manufactured and sold as tungsten steel do not contain tungsten at all. But metallic tungsten will alloy in the smallest quantities with crude iron and cast steel, imparting to both intense hardness and strength. Tungsten steel tried in the workshops of Ezels, and of Schwarzkopf and Freund in Berlin, at the Bochum Steelworks in Westphalia, &c., furnished much more advantageous results than the best cast steel for commercial purposes, being remarkable for fineness of grain, uniformity of structure, hardness, toughness, strength, and durability.

That tungsten steel surpasses in some qualities the best cast steel cannot be denied; this is fully verified by the investigations of Leguen and Caron, who found that by alloying tungsten with iron and steel it gave the metals great strength and hardness. The successor of the late Mr. Mushet, one of the first manufacturers of tungsten steel in England, produces at Sheffield wolfram steel (Mushet's special steel), the principal qualities of which are that when not hardened the best English files make little impression on it. Another peculiarity is that when having undergone the process of tempering like ordinary steel it becomes soft, and is easily worked with the file and other tools. Tools made with this steel retain their keen cutting edge a remarkably long time. The application of tungsten steel also deserves to be specially mentioned for the manufacture of steel magnets for telegraphic and electric purposes, retaining by reason of its magnetic properties the magnetism a great length of time. Tungsten steel has been found to sustain a much greater breaking strain than Huntsman's steel; and cast steel when alloyed with tungsten exhibits an extremely fine silk-like fracture, extraordinary density and hardness, a fine grain and increased tenacity, and can be worked like ordinary steel, but requires when hardened and tempered a treatment corresponding to its great hardness. Tungsten steel when being hardened requires a greater heat than ordinary steel; it must be fired when the colours are standing between reddish yellow and white.

Puddled steel as usually manufactured is largely deficient of the good qualities of cast steel, owing to the want of flexibility, closeness, and hardness; its production, nevertheless, is daily increasing, owing principally to the comparative cheapness in working. Large quantities of locomotive and carriage tyres are now being made of puddled steel, but which, however, is far inferior to cast steel, the latter wearing four or five times longer, and, although the first cost is more, may for this reason be considered ultimately cheaper. It has been discovered that by alloying the tungstate with puddled steel it acquires at once the tenacity and hardness of cast steel, and by slightly increasing the usual quantity of tungstate in the alloy can be made even to surpass the best cast steel. The grain becomes fine and clear, and neither in the fracture nor the working can it be discerned from cast steel; while at the same time the puddled tungstate steel is very ductile and easily welded, and is consequently admirably adapted for the manufacture of all tools and other articles for which ordinary cast steel has been exclusively used. The alloy of tungstate varies according to the object to be produced, averaging from 1 to 7½ per cent., a small alloy (say) of 3½ per cent. of tungstate being sufficient to produce great homogeneity, and consequently great tenacity and strength.

The influence of the tungstate on the iron and steel is ascribed to the facility with which it enters into combination with the phosphorus, sulphur, and arsenic usually contained in these metals, neutralising the obnoxious properties of these elementary bodies. Respecting the treatment of cast iron with tungstate of lime, the ore before entering in a chemical combination with the iron must be reduced in the melting mass. This reduction is effected at the cost of the carbon in the iron, by which the iron acquires more or less the structure of steel. The manufacture of tungstate puddled steel does not require specially experienced or skilled labour. The percentage of tungstate of lime required should be ascertained; the quantity is then mixed with 1 lb. of pulverised manganese ore and ½ lb. of common salt. This mixture should then be divided into six or seven portions; these portions for convenience may be wrapped in paper. When the charge in the puddling furnace is melting, and after a great heat is attained, and the charge commences to rise, the packets of paper containing the mixture are to be introduced one by one at short intervals in the melting iron, the puddler meanwhile well stirring the mass in order to thoroughly amalgamate the alloy. Before alloying, however, the draught of the furnace should be closed, and not reopened until the mixture is perfectly distributed in the iron mass. Then the heat must be raised to accelerate the combination of the tungstate and iron, which process is promoted by the manganese ore; in addition to the chemical action of the manganese it causes a blowing of the iron. Then as soon as this blowing and rising of the mass takes place the process of puddling should be continued.

The manufacture of tungstate iron is similar to the process for steel. The alloy should not, however, exceed 2½ per cent., a larger quantity causing such a degree of hardness unfitting it for working purposes. The beneficial influence produced by the admixture of tungstate of lime with puddled pig-iron suggests its use for various purposes. The tungstate can be mixed with the cast iron by adding the tungstate to the melted iron in a reverberatory furnace or in a crucible for small castings. To produce a cast iron of great tenacity, according to the chemical composition of the iron, from ½ per cent. to 1½ per cent. This alloy will be exceedingly valuable for large castings, such as axles, &c. For screws, cog-wheels, and similar articles requiring the greatest possible strength and external hardness the alloy should be raised to 5 per cent. It is asserted that conduit and gas mains will not be so liable to the changes of the atmosphere when made of tungstate cast iron. The recent improvements in the manufacture of tungsten preparations, and consequently large reduction in price, will enable manufacturers to use both the tungsten and tungstate of lime (reduced wolfram) in increased quantities, while the superior quality of article produced will command an enhanced market price far exceeding the comparatively small cost of the alloy.

At the close of another successful year the council have pleasure in meeting you upon this the twelfth annual gathering of the members of the Institute. Eleven general meetings have been held during the year 1878, seven at Dudley and four at Birmingham. The council have met 17 times, and there have been two excursions. There has been an accession of 21 new members, and against this 16 have resigned and six are dead—Messrs. R. Evans, F. Gething, R. Griffiths, J. Pearson, D. Plant, and George Barker—leaving the present total at 245, being one less than last year. Your council would here refer to the very melancholy accident that occurred at Sandwell Park Colliery, on the occasion of the visit of the members of the North Staffordshire Institute, when Mr. Geo. Barker and Mr. T. Arnold lost their lives. Both were gentlemen of position, and highly respected, and the council are sure that it is fitting to record again here their heartfelt regret of the whole of the members, and their sincere sympathy with the friends of the deceased. They would also express their sympathy with Mr. Henry Johnson, sen., and testify—as most of them were present—that everything it was possible to accomplish was done to guard against such a contingency. The heroic conduct of Mr. Henry Johnson, jun., in endangering his own life in attempting to save others is also worthy of appreciation and mention in this report. It is gratifying to the council to have to report the reverse of last year—a considerable increase in the receipts of the Institute—and this in the face of the unprecedented depression in the trades with which you are most intimately connected.

SOUTH STAFFORDSHIRE AND EAST WORCESTERSHIRE INSTITUTE OF MINING ENGINEERS.

The twelfth annual meeting of members was held at the Geological Museum, Dudley, on Monday, and was very largely attended. Mr. T. PARTON took the chair in the absence, through illness, of the retiring President, Mr. William North, Mayor of Dudley. Much sympathy was expressed for the latter gentleman, and regret generally felt at the unfortunate cause of his inability to be present. The SECRETARY (Mr. Alexander Smith, M.I.C.E.) read the minutes of the previous meeting and council meetings, which were confirmed. The following very satisfactory report of the council was also read:—

At the close of another successful year the council have pleasure in meeting you upon this the twelfth annual gathering of the members of the Institute. Eleven general meetings have been held during the year 1878, seven at Dudley and four at Birmingham. The council have met 17 times, and there have been two excursions. There has been an accession of 21 new members, and against this 16 have resigned and six are dead—Messrs. R. Evans, F. Gething, R. Griffiths, J. Pearson, D. Plant, and George Barker—leaving the present total at 245, being one less than last year. Your council would here refer to the very melancholy accident that occurred at Sandwell Park Colliery, on the occasion of the visit of the members of the North Staffordshire Institute, when Mr. Geo. Barker and Mr. T. Arnold lost their lives. Both were gentlemen of position, and highly respected, and the council are sure that it is fitting to record again here their heartfelt regret of the whole of the members, and their sincere sympathy with the friends of the deceased. They would also express their sympathy with Mr. Henry Johnson, sen., and testify—as most of them were present—that everything it was possible to accomplish was done to guard against such a contingency. The heroic conduct of Mr. Henry Johnson, jun., in endangering his own life in attempting to save others is also worthy of appreciation and mention in this report. It is gratifying to the council to have to report the reverse of last year—a considerable increase in the receipts of the Institute—and this in the face of the unprecedented depression in the trades with which you are most intimately connected.

The receipts amount to 2671. 16s. 11d., or 967. 7s. 10d. more than the previous year, when they were 1714. 9s. 1d.; the total expenditure was 2451. 2s. 8d., or 117. 9s. 4d. more than last year, but the amount includes about 115s. for the transactions, which contain many expensive plans and sections, and also nearly 10s. for making up the guarantee, owing to the small attendance at the annual dinner, so that the ordinary expenditure has been exceptionally low. You will be pleased to hear that the cash balance at your bankers has been increased by 211. 14s. 3d., and now amounts to 4521. 19s. 6d., which with the subscriptions and arrears due, 204. 16s., makes your total assets 4725. 15s. 6d.

The excursions were made to the Ferry, Hamstead, and Cannock and Huntingdon Collieries, and your thanks are due to the directors and officials of these companies for their kindness and attention. The interest at the meetings has been kept up throughout the year, and several excellent papers have been read, those by Mr. Fred. W. North being worthy of special mention. You are aware that the council have been anxious to secure suitable rooms in which to deposit the property of the Institute, and also to form a mining museum and reference library, and negotiations for this purpose with the Dudley Mechanics Institute are held in abeyance pending the arrangements the latter body are likely to make with the Free Library Committee. The council ask for your continued co-operation in advancing the objects of the Institute, and trust that during the current year you will all endeavour to introduce new members, and bring before the meetings any matters the consideration of which will advance the sciences it is necessary to cultivate.

According to the scrutineers' report, Mr. Henry Johnson, sen., was elected president, Mr. William J. Hayward vice-president, Mr. Thomas Brettell treasurer, Mr. Alexander Smith, C.E., secretary, and Messrs. William North, David Peacock, John Hughes, Samuel Bailey, Henry Johnson, jun., and John Skidmore new members of the council. The following gentlemen were then elected members of the Institute:—Mr. Fred. Griffiths, mining engineer, Pensnett; and Mr. Joseph Smallman, mining engineer, Wolverhampton; and the following as students of the Institute:—Mr. Henry Palethorpe, mining pupil, Dudley; Mr. Vincent Wilks, mining pupil, Darlaston; and Mr. Frederic Chatham, mining pupil, Rainford.

The newly-elected President was then conducted to the chair, and delivered his inaugural address, as follows:—

Mr. Vice-President and gentlemen,—As you have this day elected me a second time to fill the presidential chair of this useful and flourishing Institute, I offer you my sincere thanks for the confidence and esteem you have shown me, and for the honour you have done me in again placing me in the position of presiding over the mining profession of this important mining district. To have the confidence and good wishes of a whole fraternity of brother professionals is no slight honour, and ought to be valued more than riches. With me it is so, and I will endeavour during my year of office—as, I think, I have always done since the formation of the Institute—zealously to protect the interests of the members, and discharge the duties of my office with courtesy and impartiality to all of you. There is one thing in connection with the honour you have this day done me that I could have wished had been otherwise—that you had kindly selected a brighter and better time of commercial prosperity in which to have me such a pleasing service for the welfare of the profession, and in which iron trades is enough to know all the science out of every one of us, and, indeed, every bit of pluck there is left in us. Ever since the formation of this Institute, and for the whole course of my business life I never recollect to have known such a universal depression of the staple trade of the kingdom. There is, however, one consolation—all our foreign friends are labouring under the same depression, but not in so great a degree. Thousands of times a day it is asked "When is it to mend, and what is to mend it?" Nobody seems to be able to solve the question. One thing is quite certain—England cannot go into the markets of the world unless she can get labour as cheap as other nations. As it now she has to pay more for shorter hours than either France or Belgium. Another great drawback to the mining and manufacturing industries of this nation is over-legislation both as regards the Mines Regulation and Factory Acts. In my judgment, if these restrictions are not relaxed, instead of increased (as is sought by the workmen's M.P.'s) there will soon be no mining engineers to direct operations, or any good colliers or miners to raise the raw material. A very large majority of the higher class of mining engineers throughout the kingdom now refuse to take the responsibility under the Act, and the management naturally falls into the hands of less competent managers. And as regards the class of colliers, always as compared with 40 years ago Mr. Macdonald has said at the Miners' Conference that "50 years ago a miner was a skilled workman." Mr. Macdonald was quite right, but at that time he served an apprenticeship for six or seven years, and were thereby taught to get coal skilfully and with great care, but under the legal restrictions imposed nowadays he is kept out of the mine until he is too big, and grown too lazy and cunning, ever to make a good skilled workman of this. This is clearly evidenced by the recommendation passed at the Conference before referred to that "the old system of apprenticeship should be again adopted."

There are many recommendations being prepared by the representatives of the miners for the consideration and adoption of the Legislature that will require being by this and kindred institutes; such as the appointment of additional inspectors; an increase of managers' responsibilities; and that he should not be permitted to act till he had had from 15 to 20 years experience; compensation for accidents against the owners; and, lastly, the restriction of output. To pursue the question of wages further would be simply loss of time, and, therefore, I leave the question of "supply and demand" to regulate that, as assuredly it will, and we cannot but deplore the lamentable condition to which the question of labour and capital has to a very great extent brought the country. It is pleasing to recount some very good work the Institute has done in the past twelve months by Mr. Williams, the chemical lecturer to the Institute, in determining that fire stink, or spontaneous combustion, in our thick coal seams may be rendered explosive by a mixture of atmospheric air, carbonic oxide, and gases given off from a slow, destructive distillation of coal. The result of these experiments clearly points to the explanation to several reputed explosions that have occurred in this district when attempting to overcome and stamp out the slow gob fires so prevalent. I must confess that all my teaching was that where gob fire existed no explosive gas could exist; but the result of Mr. Williams' experiments proves the contrary. The subject of fine coal dust—floating in the mine—mixed with a very small percentage of carburetted hydrogen being explosive has also received Mr. Williams' attention, and clearly demonstrated; and this matter is now receiving an exhaustive discussion by the parent institute of the kingdom—the North of England Mining Institute. This discovery may be said to have satisfactorily accounted for many hitherto unexplained causes of explosions in different parts of the kingdom, where large quantities of fine coal dust exist along the roads of the mine. It is by these researches that the work of such institutes as this becomes of the utmost value, and I trust that the work of the present year may be as good as the last one was, and in asking one and all of you to contribute thereto all you can I trust I am not asking in vain. There are many more points of interest I should like to refer to, but time will not permit, as I wish to call your attention to a few recent important appliances in mining. As the economy of underground haulage in large collieries is being made the rule of the day I wish to call the attention of members to a new system of haulage both simple, effective, and economical. It is Lishman and Young's portable compressed air engines for underground work. Six of these engines are at work daily at Earl Durham's collieries, Fence Houses, Durham, and are said to be working most satisfactorily. I understand that it is intended to substitute these engines where horses are used. I consider it the most novel application of compressed air as a locomotive power I have ever seen. It will be seen by the diagram that the engine is no larger than an ordinary tub of coal, and only weighs about 14 cwt. It is capable of doing the work of five or six horses on the flat, and only costs about 50s., and the ordinary horse drivers in the pits are set to drive it. The engine may be described as follows:—It is worked by compressed air generated at the surface, and carried down the shaft in pipes, with distributing mains along the main roads of the pit. At fixed points along the main roads a supply of compressed air at 200 lbs. on the square inch can be obtained from laps in 20 seconds, and in working the driver cuts off the compressed air at one-fourth, or at such other length of the stroke as is sufficient to overcome the load, or he can run away with it at the rate of six or eight miles per hour, and it is as much under control as a horse would be. The engine consists of two 3-inch cylinders, 6-inch stroke, fixed underneath a wrought iron framework 5 feet long, upon which is mounted an air receiver which is 2 feet in diameter, and capable of holding 20 cubic feet of compressed air at 200 lbs. on the square inch. The axles are cranked, no reversing gear, but the slide valves are worked by loose eccentric of the ordinary kind, and when the driver wants to reverse the engine he gets off and pushes it back until the eccentric gets into position. The four wheels are coupled together, and the gauge of the rails is 24 in. only; it is working on roads at a gradient of 1 in 15. The driver has simply to control the throttle valve while at work during the day, and leave it at night at the nearest compressed air supply station to be ready for work next morning. For compressing the air some old coupled engines at surface are utilised; an air cylinder is attached to each steam cylinder—one air cylinder compresses to 50 lbs. on the square inch into the other air cylinder, and this com-

presses the air up to the required 200 lbs. on the square inch. A very high authority, both practical and scientific, after carefully examining it working, considers it a perfect success. Since this the inventors have increased the capacity of the compressed air reservoir to 40 cubic feet instead of 20 cubic feet, and this addition to its weight has materially increased its efficiency. The authority referred to above has asked—"Why should not this principle of compressed air engines be applied to our local town trains?" And I think with him, why not? It would have the advantage of not eating nights as well as days, and of not having the belly ache when it was required to be at work. I am desirous of calling your attention to the pneumatic winding apparatus invented by Monsieur Tabna Blanchet, engineer at the Hottinguer Pits, Epinal, Dijon, France. The mine there is 674 yards deep; the shaft has reached a further total depth of 763 yards, and is now in course of sinking to the lowest seam, which is expected to be struck at about 1093 yards from the surface. It was to obviate the great expense and risk of winding with wire ropes from this unprecedented depth that M. Blanchet turned his attention to the practicability of raising the coal by his pneumatic tube; it has been in work since 1876. The tube up which the coal is raised is 5 ft. 3 in. in diameter, and is made of 16 plates, each plate is 20 ft. long; each length is hammered perfectly round on a mandrel. The total weight of the pistons, cage, tubs, and coals is about 12 tons. The cage is fitted with two pistons at the top and one at the bottom, and the cage altogether is about 65 ft. long, and carries nine tubs one above the other; the area of the piston is 3 ft. 7 in., and the pressure per square inch is about 8 lbs. to lift the cage and its load. When the exhaustive engines at surface are set to work, the cage with its load commences to ascend at a rate equal to the exhaustion of air above the top piston. The load is raised to the surface (674 yards) in about two minutes. The coal load is about 5 tons. When the cage has discharged its load by three successive "pitches up," the valve is opened and the empty cage and tubs descend at the pace and will of the attendant. Each descent of the cage discharges 70 652 ft. of vitiated air of the mine, and thereby provides for the ventilation of the mine, as only one shaft is as yet sunk. The pit outside the 5 ft. 3 in. tube is provided with small winding-engine, rope, and cages for repairs, &c. The steam-engines are 600-horse power, working two exhausting cylinders 108 in. diameter and 10-ft. stroke. It is said it will save 2000l. a year in winding-ropes. Considerable saving of coal as compared with winding is claimed for the pneumatic tube. The raising and lowering of the cage is said to be as controllable as the steam in the steam cylinders.

I now wish to call the attention of members to a new patent round wire winding-rope, especially designed for sinking with the view of preventing the objectionable twist in winding. Economy of wear and tear are also claimed for it by the patentee. I am unable to say from personal experience whether these two desirable ends are accomplished, but as the rope appears to me to possess these advantages, with your indulgence I will endeavour to explain why I think so. Instead of the wires comprising the strands of the new rope being all laid one way—say to the right—they are laid alternately to the right and left, and when the several strands which comprise the rope come to be laid together, the wires of one strand fall more evenly between two wires in the contiguous strands with the much longer and more graceful bearing. Such a rope, when in work, must I think have a less grinding effect, wire upon wire, in passing over the pulley or drum. By the ordinary mode of construction, with the wires of each strand all laid one way, when the strands come to be laid the wires of the one strand cross the wires of the next strand at a much shorter angle, consequently the outside wires are subject to compression in passing over the pulley until they cut into the under wires at the points where they cross each other. It seems but reasonable then that the longer the bearing of the wires in contiguous strands the better it is both for strength and wear and tear of the rope. I think a rope so made would not be likely to twist in winding (at most but very little) and the tendency to break would be checked by the wires being laid in each strand to the right and the left alternately, and for the reasons I have already stated I think the wear and tear would be lessened. Messrs. Newall are the patentees.

AUTOMATIC COMPOUND FIRE EXTINGUISHER.

The paper of Mr. Alex. Smith on Mr. F. McMurrough-Kavanagh's automatic compound fire extinguisher, described a carbonic oxide generator, to be placed permanently in rooms, stores, &c., to be protected from fire. The details as to the materials of which the compound is made are not given, but can of course be found by consulting the specification of the patent. It is explained that the decomposition of the material is brought about by ignition. A certain number of pounds of the compound, calculated for the area of the space to be protected, is placed in boxes in the four corners of the room, and at intervals on the sides if necessary on strong iron brackets. The boxes are all connected by water and rat proof fuse. A line of fuse is also run from each corner box to the box in the opposite corner, making an acute angle in the centre of the ceiling. From each box, again, a fuse is run down the corners, and skirting the room completely along the sur-base or near the floor, thus providing for a fire that may start in any part of the room. Fires usually occur in the corners or on the sides of a room, among storage or other matter that may be located there. The fuse around the sur-base is thus ignited, and in case of fire arising from the friction of the machinery flames naturally ascend, which would ignite the ceiling fuse, and thus secure ignition of the compound. The author states that the system is automatic, always ready, perfectly reliable, can only be brought into action by fire itself, and never deteriorates in quality. It is of no avail in the open air. Its use is confined to apartments either tightly or comparatively closed, and in such places its extinguishing qualities are positively infallible. In case of a fire in an apartment where the compound is placed as described it does not wait until a great conflagration ensues, but a slight flame is sufficient to ignite some of the numerous fuses in and about the room. The fire is thus conveyed to the boxes containing the compound ignited; in a few moments more the work is done, it matters not how highly inflammable the materials upon which the fire may be feeding. The compound burns freely, and evolves a dense volume of vapour, dividing into distinct gases—carbonic and sulphurous acid gas. Sulphurous acid gas seeks to destroy the oxygen by thoroughly commingling with it, in order to form new chemical properties, while the carbonic acid gas displaces the oxygen to make room for itself. Either of these conditions render the air unfit to support combustion, and would perform the work singly and alone, but the two elements combined make an absolute and positive annihilator of fire. Mr. Smith also states that "this compound fire-extinguishing agent has been in use in Germany since the year 1864, and has been introduced in the United States, from which country there are innumerable testimonials of its proved efficiency. There is scarcely a coal mine in the anthracite regions of Pennsylvania which has not the compound fire extinguisher, some fitted up automatically, and others having the compound in various sized boxes. At Maros Vigos, in a burning pit at the Salt Mines, with a capacity of 250,000 cubic feet, 500 lbs. of the compound were so successfully applied that most of the wooden framework remained uninjured, and no lives were lost."

The CHAIRMAN proposed the adoption of the report, which Mr. COLLIS seconded. Carried unanimously.

The PRESIDENT moved a vote of thanks to the retiring president, Mr. William North (Mayor of Dudley), who is unwell. Votes of thanks were also passed to the other officers of the society.—Mr. ALEXANDER SMITH responded.

Mr. William Wardle presented a paper (read by Mr. Norton) on "Compressed Air," with notes of results obtained at Rainford Colliery.—The Secretary read a paper on an "Automatic Compound Fire Extinguisher," from Mr. Kavanagh.—Mr. Joseph Williams, chemistry lecturer, made several experiments with coal dust, showing that under certain circumstances there was great danger from explosion in mines when finely divided coal dust was flying about. The experiments were completely successful.—Mr. W. J. Lancaster, F.C.S., read a paper on "Recent Improvements in Electric Lighting," and showed a model of his own by which with counterpoise he claimed to have overcome the too weak and too strong currents of electricity.—Mr. Lancaster also exhibited the microphone and the phonoscope, which excited great interest.—The Secretary read a paper on the pulsometer pump, and several other items were placed before the meeting.—The members afterwards dined together.

THE PROPOSED DISUSE OF POWDER IN MINES, COMPENSATION FOR INJURIES TO WORKMEN, AND RESTRICTION OF OUTPUT.

At the North Staffordshire Institute of Mining and Mechanical Engineers' annual meeting, held at Stoke-upon-Trent, on Monday, Mr. W. Y. CRAIG, who was elected president for the year, read a long and ably prepared inaugural address, in the course of which he said that for the past four years they had been suffering from commercial depression, and the period of depression was immediately preceded by three years of inflated trade, during which time wages were advanced until colliers could earn 10s., 15s., and even 20s. within eight hours, and the working hours were reduced to 48 a week. The wage rate had since been reduced below what it was in 1870, and in several districts the hours of labour had been increased. The Mines Regulation Act occasioned great changes in the working of coal, yet they stood face to face with propositions which, if carried out by Act of Parliament, would affect the cost of working coal to a greater extent than the Act just mentioned. He alluded to the proposal to discontinue blasting in coal mines and to the Bill introduced by Mr. Macdonald, the member for Stafford, for making employers liable for injury to their workpeople. It was impossible to decide whether the disuse of gunpowder should be recommended in mines where safety-lamps were required without first ascertaining how far the lamp was a protection against explosions. He explained that there were many causes which might instantly render a lamp as unsafe as a naked light, and that the safety-lamp afforded little protection to life unless gas was removed immediately on the first manifestation of its presence. No doubt lamps were sometimes opened surreptitiously for the fact was that colliers opened their lamps under strong temptations to get better light, and that temptation would continue so long as the light from a safety-lamp was so inferior to a naked light. A man could do his work better and was better prepared to escape falls of roof and slides when he had a naked light, and considering that in 1875 there were 95 lives lost by explosions and 449 by falls of roof and slides, they could understand how strong the temptation was to obtain sufficient light to avoid such dangers.

Explosions had often been attributed to recklessness of miners instead of to the inferiority of the light, which was the primary cause of the evil. He thought the day was not far distant when the use of the electric light successfully applied. The lamp should only be regarded as a safe indicator of danger, and as soon as the altered flame revealed the presence of gas it should be taken as a signal to retire. The conclusion, therefore, was that with the lamp they had no protection to life unless accumulations of gas in the working face be prevented. Referring to the question of shot firing, Mr. Craig said the use of gunpowder as a

* Being Notes on a Course of Lectures on Mining, delivered by Herr Berggrath Dr. von Gumboldt, Director of the Royal Bergakademie, Clausthal, The Harz, North Germany.

rale lessened the cost of production, and if dispensed with in certain mines it would be difficult to work them at a profit. The prime condition of safety was to keep the working faces properly ventilated, to insure which it was absolutely necessary that they should be inspected occasionally during the shifts by some skilful trustworthy man. He believed the disuse of powder would lessen the quantity of coal got 30 per cent., and increase the cost of production 84. to 1s. per ton. Something might be put on the other side for increased produce of round coal, but there would still remain a considerable balance of loss. In many of the thick seams of Staffordshire there was absolute danger in wedging down coal. In North Staffordshire in 1877 the loss of life by falls of roofs and sides exceeded the proportion of five to every one lost by explosions. He explained the proposals contained in Mr. Macdonald's Bill, the principle of which, he said, was approved by the leaders of the Opposition in the House of Commons, and he believed in a short time some such measure would become law. He estimated that 1d. per ton would cover all liability for compensation under such a measure within the district of North Staffordshire, Shropshire, and Cheshire, where there were 245 collieries. The Bill required careful watching, for it would be manifestly unjust to demand compensation where the men through carelessness or disobedience contributed to their own injury. It was melancholy to witness the waste of capital arising from the unfortunate attitude of the employed in relation to the employers. Between 1851 and 1873 the men obtained enormous advances of wages and a reduction in their working hours. This was all reversed, and when they had a turn of trade the probability was that the men would demand and obtain what they had recently lost. Some proposed as a remedy for the present evils a restriction of quantity. While he could not see the utility of producing more than was required, and thereby gorging the markets, he disagreed entirely with the suggestion that each man should produce so much less coal. He had carefully watched and considered this question, and would give the results of this at an average colliery last year.

There was paid to colliers for bargain work, in getting the coal and loading it, 704d.; and after eliminating all items, such as royalty, which were not affected by quantity, the cost of day wage work and materials amounted to 18,178s. The latter amount was a fixed charge when the pit worked, and was two and a-half times the former amount, which varied with quantity. The cost per ton upon gross produce of this for this fixed charge for the year was 3s. 1d. If the colliers had only worked two-thirds of the quantity produced during last year the cost of the fixed charge would have been 4s. 7d. per ton. Hence there would have been an aggregate loss of 1s. 6d. per ton upon the gross quantity produced—8878s. upon the year's working. It was only when the difference between the selling price and the cost of production became unacceptably small that reductions of wages were resorted to, and the men only aggravated the evil when they attempted to prevent a reduction by producing so much less coal. Enormous loss arose through the irregular attendance of colliers to work. During Monday, Tuesday, and Saturday the quantity produced did not exceed two thirds of that produced during the other three days, and this increased the cost 9d. per ton above what it would be if the full quantity was worked each day. Saturday was very properly made a short day. If, however, the attendance at work in the two first days was what it ought to be, the cost would be lessened 6d. per ton—30 per cent. of the getters' wages—and the drawing was only 18 hours a week the men could not learn too quickly how necessary to their own interests was regular attendance. He was no advocate for extended hours of labour, but there was no reason why machinery should stand still 16 hours out of the 24; and the workmen and their leaders committed a fatal error when they decided, in 1873, to resist the double shift.

By compelling an owner to keep his mine inactive two-thirds of the day the current cost was greatly enhanced, and the amount of capital invested was much greater than it would otherwise be. Between 1871 and 1875 there was an increase of 1885 collieries in the United Kingdom, and the capital invested in them was not less than 50,000,000. The increase of the produce in 1875 was 10,000,000, or about 1-7th of the produce of 1871. He had no hesitation in saying that all, or nearly all, this expenditure could have been saved had the men and their employers acted wisely together, and instead of diminishing the quantity had they sought to increase it by working double shift in every case where good management and sound policy directed it to be done coal would never have risen to the prohibitory price it reached in 1873. They would not have been suffering from over production, and would probably have had fair times now instead of a state of things which was gloomy and embarrassing. He had no objection to Trade Unions; on the contrary, he thought it right and proper for men to combine together to protect their interests, but until the rules by which these Unions were governed were brought into harmony with the general interests of the trade they would be productive of little good, and might produce mischief. The President's address was cordially received.

Meetings of Public Companies.

GREAT HOLWAY MINING COMPANY.

The special meeting of shareholders was held at the offices, Great St. Helen's, on Monday, Sir STEPHEN WALCOTT, K.C.M.G., in the chair. Mr. E. J. BARTLETT (the secretary) read the notice calling the meeting.

The following reports were also read:—

Jan. 29.—I beg to hand you report of our proceedings since the last general meeting. You will remember that about that time we had completed the erection of a 20 horse power engine for winding at Roskell's shaft, together with an air compressor for a Road Head boring machine. We then commenced sinking the shaft, and I am glad to say the machine did its work well, but were obliged to suspend operations for the time being in consequence of the great influx of water from the 80 level at Level engine-shaft when we intersected the course of lead ore of which I have given you information, but seeing the difficulty the water caused us the directors very wisely resolved to stop all underground operations at this point, and put up an engine capable of coping with it, and enable us to go down under the great bodies of ore, which we are confident exist from the lode seen in the 80 at Level shaft. We, therefore, put all force to make the foundation for the engine-house, &c., and this work was proceeding satisfactorily until the frost appeared, which I am sorry to say stopped all progress for the last nine weeks. Although the delay is most annoying I think it will benefit us in one way by allowing the walls to settle down before we get the girders for lifting this heavy but splendid machinery to its place.

Our other operations have been confined to communicating Garden shaft with the deep adit, which is now accomplished. Before commencing this, however, we had been informed that there was a capital lode of lead in the bottom of the old workings, and after drawing out the water and securing the place we found a fine-looking vein, composed of lead and blende, and from which we have taken several tons. This bunch of lead was worked down under a bed of shale, which in the neighbourhood was always thought to cut off the lode, but we were not satisfied upon this point, and determined on putting a level eastward through the shale at a point noted on the enclosed section, and I am happy to say that after going through it about 6 feet we cut into a fine lode, so proving former impressions groundless. We have magnificent lead here, and on Monday last cut into some more equally as good on the footwall side. There is also all along the level now driven for upwards of 40 feet. I feel sure this will open up well for the ground is everything one could desire, and of the most congenial character, the stratum in itself quite enough to convince any miner that we shall open up a great mine. You will please understand that all the ground east of us in this fine lode is high and dry for between 70 and 80 yards—an important feature, which cannot be over-estimated. We shall continue driving this level, and also intend to make the Garden shaft complete, so as to draw the stuff to surface instead of sending it down by boat, enabling us to dress the produce under a more modern system of conveyance. Our plan is to construct a small water wheel, crusher, and other appliances at Roskell's shaft; construct dressing floors and small reservoir above Roskell's shaft; we shall then be in possession of water to wash and dress at all times. The heavy parts of our engine are all delivered on the mine, and we shall not be long in placing it in working order. The opening up of Garden shaft has given us an unexpected string to our bow, and it cannot be doubted that our prospects are brightening every day, and when all our machinery is in order we shall have a mine second to none in the Principality. True Blue is producing lead, and will no doubt continue to do so. Other subsets on the outskirts of the set can be made on the north and south lodes, all in due time, and will help to swell the exchequer. J. KEMP.

Jan. 30.—I have much pleasure in handing you my report on this mine for your meeting to be held on the 3rd prox., which I hope will be satisfactory to the shareholders generally. As you are aware all our forces have been concentrated in the erection of the building for the 80-inch cylinder engine boiler for the last four months. The operation proceeded rapidly, and three-fourths of the engine-house had been erected, when the frost prevented anything more being done. Since then we have been engaged in bringing up the heavy portions of the engine, which I am happy to say are now ready to be fixed in their places as soon as the buildings are complete. We have been fortunate in bringing all the heavy articles without any breakage or damage. All the parts which were to have come by railway are on the mine, and the lighter portions will arrive by vessel. I am pleased to say that what I have seen of the machinery it is equal to new, and will be powerful enough to lift all the water we shall meet with. We have been delayed by the frost for the last nine weeks or the engine-house would have been completed, but we now expect a change, with longer days and finer weather, when the works will be pushed on as rapidly as possible. With regard to our underground operations, I am happy to state that what has been done is of the greatest importance to the mine, as it will open up a very large extent of ground hitherto thought of little value, and certainly not mentioned in our prospectus. I consider it (now that it is discovered) the most promising part of the set, as it is the eastern part of the old Holway vein; you will recollect that this vein has been worked from the turnpike gate under the old road west, through Celyn Bog and Gorsead and Merilyn, beyond the Rook Public House, from which points thousands of tons of lead and calamine have been raised. At or near to the Holway office this vein splits, one part (the richest) going north-east towards Roskell's. The other branch was neglected for a considerable time, but eventually trials were from time to time made, but without much success. The last party were driven out owing to the influx of water, and the lead seen was dipping down under a bed of shale, through which was generally supposed it did not penetrate; to prove this we determined to drive through the shale, and in doing so found that the vein still continued, and contained splendid lead ore and jack. The sample sent to the office was taken from the western side of the shale, and that now raised from the eastern, and that found on the south or heading side of the vein, is now looking even better than the former.

It is our intention, in order to prove this effectually, to place a small portable engine on Garden shaft which we have at hand and in good order, with all the fittings complete. It will be only required for drawing, as there is a communication with the adit to take the water off. My opinion is that now we are out of the influence of the branch to Roskell's the old Holway lode will open again, and be as rich as ever from the present discovery to Holywell. Looking at our future prospects, I cannot help thinking they are much brighter than ever they were before, and all we require to bring the mine into a paying condition is time and perseverance. When the new engine is at work, the pit sunk to the vein, and Eytton's engine started, we shall have a very large mine to work upon, where lead is known to exist, and I believe it will be a paying mine for generations to come.—W. FARRY.

The directors' report was then read.

The CHAIRMAN said: Gentlemen, these documents, you will per-

ceive, will inform you that this is not the regular annual meeting, but what may be thought a half-way step between two meetings, the last and the next, which will take place in August, therefore we have not prepared a balance sheet, but we shall do that at the general meeting in August. I desire to make a few observations upon three or four of the topics touched upon in the *resumé* which has been last read to you about the progress of the works at the mine. We were induced mainly to summon you together to-day in order to keep you *au courant* as much as possible with what is going on, and inform you of the change of plan which has taken place since we originally started. You will recollect it was then our intention to carry on our works by means of a water-wheel at the mouth of the adit, but about the time of the last meeting some doubts were raised as to the advisability of such a course, and, in fact, as to there being a sufficient amount of water to turn the wheel. Upon taking further advice, and upon consideration, we decided to change our plan entirely, and use the steam-engine as a means of unwatering the whole of our set. Accordingly, as mentioned in the report, we have purchased on advantageous terms this present machine, of which the greater bulk is on the mine now, only awaiting for the completion of the building for its reception. Besides the change which the plans have undergone, we have made what may be almost termed a new discovery of ore. Our predecessors, in their workings had come to shale, and they considered the lode on which they were working had become disarranged or poor for lead. We have, however, pierced through that shale fault, if it may be so termed, and have found the lode on the other side of this fault as rich as ever, and, therefore, we may consider it almost a new discovery. It is not an independent lode, for the old Holway vein splits at a certain point, and this is one of the branches of that split, which we find now to be very rich indeed, as Mr. Kemp states. We have had even more recent advice yesterday that the discovery there is very favourable indeed, and richer than we had any reason to anticipate.

Hear, hear! I must not change the subject until the new discovery. I have another point I will say a few more words upon. You will see the board has two members more since our original formation. We thought that expedient. We have power by our Articles of Association to elect seven members to the board, but when we first started from economical considerations we had only five, but subsequently, for financial reasons and general policy, we thought it expedient to increase the number to the full amount allowed by the Articles of Association. We get, of course, the influence and interest of those two members. All the rest of the board, with the exception of Mr. Parry, reside in London, and we thought it better to have a larger field of interest in the country. The next point which I will offer a few observations upon is the progress which we have made and our prospects. We have, unfortunately, fallen upon bad times, as everybody knows who has anything to do with mining speculation or other commercial undertakings. For the last five years a heavy cloud has overspread us, and everything has been pretty nearly at a standstill. The cause of this long protracted depression, as it appears to me from what I have been able to hear and see, may be attributed mainly to two principal causes—bad harvests and the diminished supply of gold. It will be in the knowledge, probably, of our shareholders that the years 1875, 1876, and 1877 were remarkable for diminished harvests, and that the year 1877 means the exportation of at least three millions of money, and you cannot withdraw that amount for two or three years running without producing a great effect upon all the mercantile institutions of the country, and to that one cause I attribute chiefly our great and continued commercial depression. There are secondary causes which I need not allude to, but to my mind the deficient harvests and the diminished supply of gold are the two moving causes of the present depression. From calculations made by Mr. Caird, which I have seen, he puts the harvests of the years mentioned as being at least a quarter less than the average of ordinary years, but compared with gold harvests it was much more so. I think it is quite plain what an effect it must have had upon all our commercial undertakings. Now, with regard to the supply of gold. In the year 1851 or 1852 the discovery of gold was made in Australia and California, and consequently a large rush of people from these countries went to the diggings there, and their efforts produced a sudden increase in the supply of gold. But time has not carried on that course of increase; on the contrary, it has been falling from 1852 to the present time. I suppose in the first one or two quinquennial periods between 1852 and 1877 the average increase was about 30 millions value annually of gold. At present the last calculation I have seen is that the increase has fallen to about 15 millions, so there goes about 10 millions of gold which we were accustomed to have annually, or nearly one-third of the amount which we had about 25 years since. But, besides that, there has been an increased demand for gold, notably in Germany, in Holland, and in the United States. The two first-named countries have taken occasion to alter their currency and adopt a gold standard, and the United States have also resumed cash payments. These countries, therefore, have been compelled to absorb as much gold as they could, the former for the purpose of coining, and the latter for the purpose of resuming cash payments. This of course has had a serious effect upon the supply of gold, and it is quite plain that a marketable commodity, and is governed by the same laws of supply and demand. When gold is cheap—that is, plentiful—of course all other articles are apparently dear, for more gold can be and is given for them; and when gold is dear then, of course, the contrary effect will be found to take place, and people who only live upon the receipts from their daily work are very much pressed. However, these two causes are I think the two principal reasons why we find ourselves in so long, heavy, and protracted a distress in mercantile transactions. We have been hoping from year to year that there would be a turn, but whilst the bad harvests and the demand for gold continued of course it was pretty nearly useless to hope. Now, I think there is a glimmer of light at the end of the tunnel which I may call a silver lining, or which, as appropriate to our prospects, we may call a "lead lining." My ground for saying this is that 1878 was not like its predecessors of 1875, 1876, and 1877, but as regards corn, grass, and roots was a tolerably good harvest, which will make a sensible difference I hope in the affairs of this present year. The great drain for gold has ceased. Germany and Holland have completed their currency arrangements, and the United States have done nearly the same, and, therefore, they have not the same demand for gold which existed previously. This I think is an indication that a turn is about to take place for the better of all things. (Hear, hear.) The remaining topic is with regard to our share capital. Originally, when we started, we thought we should have to expend about two-thirds of our share capital, and to retain as a backbone to work upon the remaining one-third. We still hold to that policy, and we have issued all the shares with the exception of 720, and those we propose to offer to the shareholders if they will assist us to dispose of them. I need not tell you that on account of having embarked upon machinery which I did not originally contemplate having to purchase we have required more capital to carry on the works; and I hope the shareholders will have sufficient confidence in the working and in our management to help us in this, and by the means of a great accession to the works as they go on, and I dare say they will be able to give you some information of their own, which will have more weight than anything I can address to you.

Mr. MACKESON, Q.C., said that, in the character of a non-mining director, he had taken some pains to make himself as thoroughly acquainted with the position and prospects of the mine as a non-professional man could make. Ordinarily speaking, when a company was well started, and all the principles and practices were well fixed, the less shareholders troubled themselves about the matter between one annual meeting and another the better. The thing was started, and called along cleverly by itself, but before the company was well started, and before the principles and practices were well fixed, it was to be carried on, and if in the interval between the two ordinary meetings some very striking new features were discovered, he really thought it was better not to keep the shareholders in the dark in respect to the matter, particularly in the case of a mine where so little could be seen by ordinary people. The two features which had risen up and presented themselves were the alteration in the mode of unwatering the mine, and, secondly, the discovery of a lode in the Garden shaft. With regard to the first—the alteration in the mode of unwatering the mine, they all proceeded upon the supposition that this could be done through Roskell's by means of a water-wheel at the mouth of the adit, and the means, by the workings at Eytton and Partridge's shafts, which contained enormous lodes. It was suggested at the last meeting whether the water-wheel could succeed in doing that. The directors, therefore, decided to employ a water engineer to go down and ascertain the fact, and two or three of the directors also went down themselves and looked into the matter, and the result was that the directors were led to decide to purchase a capable engine which would not only unwater Roskell's shaft, but also render it unnecessary to put into operation the two large engines which they had at Eytton's and at Partridge's. The operations at the Level engine-shaft ceased at a time; there was as good a discovery as there was at Eytton's and at Partridge's, and the water was brought under notice. It appeared that fortunes had been made to the west, and then came the question—What was done to the eastward? and in the search it was discovered that the ground eastward was almost untouched, and there was no reason why ore should not be as abundant to the east as to the west. Therefore it was determined to make a communication between the deep adit level and the 45 yard level under Garden shaft for two purposes—one to carry off all the water which was in the 45 yard level, so as to leave it clear, and high and dry; and next, by the communication, to get into the lode which Capt. Kemp was certain existed. The consequence was that it was unwatered, and there was reached there the most splendid quality. The question arose as to how they were to carry it away. It was in a peculiar position. There was the deep adit level underneath the lode, and there was the surface, and they could either raise it to the surface by Garden shaft or carry it down by the old-fashioned means of boats to the mouth of the adit. But in order to do this they must have sufficient water in the deep adit level to enable the boats to swim, and therefore they were obliged to raise the water by means of a temporary dam at the mouth of the level. The consequence was that there was back-water in other parts of the mine, so, although this mode of getting the ore out was a good one, it would not do permanently, and therefore the directors were led to make a portable engine from another part of the mine. Former workers had made fortunes from the western part of the mine, and he hoped this company would make its fortune from the eastern portion. It was proposed to run a number of levels so as to put on a good force of men, and when that was done, if what was told by Capt. Kemp and the managing director was correct, they could go on *ad infinitum*. The lode was unknown when the prospectus was issued. No engine was needed to unwater it, and they only wanted patience, when they could go on level by level, and deliver the lead to the surface. He thought the shareholders would thank the directors were justified in calling the present meeting to tell them of this discovery. He believed that they were shortly they would be raising 50 tons per month from Garden shaft alone. (Hear, hear.)

Mr. E. J. BARTLETT said he would first refer to the prospectus. There was a certain basis on which the shares were taken up, and many of the shareholders took up their shares upon the faith of the statements therein contained. But recently there had been many additions to the number of shareholders, and probably those gentlemen were not acquainted with the prospectus. If they would refer to it they would find that dependence was chiefly placed upon the unwatering of Eytton's shaft and Partridge's workings, and also the deepening of the Roskell shaft under the bed of the mine, and the fortunate discovery of a great many of the old workings. The same facts remained. In the first place, in regard to Eytton's shaft, they had not made any progress, nor did they intend to do so, nor, in fact, could they do so until the central operations at the Roskell shaft workings were completed. As regarded the central operations, they were decided upon at the last meeting; but before the water-wheel was erected at the adit's mouth careful attention had been paid to the point as to whether there was a sufficient quantity

of water passing to work the water wheel. It might be asked why the water-wheel was purchased before they had had the opinion of those engineers and gentlemen to whom Mr. Mackeson had alluded? Well, a little explanation on that point was necessary. The wheel originally cost something like 1600*l*. It was bought by the former proprietors of the Holway Lead Company to place at the adit's mouth, to work at the Roskell pit, and about 700*l* was given for it. Before the late Holway Company were capable of setting the wheel to work the financial position of the company had arrived at a low state, and they were unable to proceed, so when the wheel, amongst other things, was put up by the liquidators, of course this company had the first chance of securing it, and thinking they were justified in purchasing the wheel upon such favourable terms, it was secured. He thought that explanation was necessary, because the question would naturally occur why they did not ascertain before they bought the wheel? The directors had been trying to make arrangements to dispose of the wheel, but hitherto they had been unsuccessful; but if things took a turn for the better, no doubt they would be able to dispose of it. One advantage of the depression of trade, to which the Chairman had alluded, was that the directors had been enabled to go to Cornwall and purchase a fine and powerful engine upon favourable terms. In the report presented to the last meeting it was stated it might be thought desirable to erect a 70 in. Cornish engine; but in order to be specially safe, they had purchased an 80 in. engine. This engine cost 4000*l*, at the mine where it was erected, and he might mention that this company purchased it with four boilers, connections, fittings for engine house, and, in fact, everything required for its working for the sum of 1200*l*. Progress had been made with the transit of the engine, and the heavier part was now on the mine. He must dwell upon the importance of having ample power upon Roskell's shaft. There was a splendid course of ore at Eytton's shaft, and there was a cross cut to strike off to the Gorsead lode. There were the Partridge workings extremely rich, and even with the discoveries already made there was a return promised of 60 or 70 tons per month. But Roskell's shaft being rather further down in the valley, and forming the basis of the whole set, it was important to have sufficient power, with the hope and probability that not only would that engine cope with the water which might be met with on the deepening of Roskell's shaft, and drain the magnificent discovery which Mr. Kemp alluded to at the last meeting, but also whether it might not be possible to make this engine the receiver for the upper workings, and the probability was that they would be able to do without the Eytton's and Partridge engine, which would effect a saving in costs and wages. The directors intended to make elaborate floors upon Roskell's shaft; the pit-work would be 22 in., and the whole arrangement would be so substantial that they believed when the engine was completed there would be a great future for the mine. They had erected what he believed would prove one of the best constructed engine-houses in Wales, and it was intended that the further works should be substantially done, because they were not dealing with a mine with two or three major lodes, but with a whole network of lodes. Besides the powerful east and west lodes, there were numerous north and south lodes. Upon what was termed the offshoot of the True Blue, a few tributaries had raised, since they started, 50 tons of lead. As soon as the portable engine was placed upon Garden's shaft they would be able to take out the dam, release the water in the adit level, and go to work towards the True Blue, and he believed from that they would get very good results. To return to Roskell's shaft. When Roskell's shaft was deepened, for which they had boring machinery, all paid for, every inch in the direction of Eytton's would multiply the stopping facilities, and increase the returns from the mine in the future. There was no knowing to what extent they might go in the returns: 150 tons per month throughout the whole set might easily be made if the arrangements which they were perfecting were carried out with respect to the dressing. As regarded Garden shaft there was no notice of it in the prospectus. There it was stated that the whole of the property was leasehold; still there was some freehold. Garden shaft and True Blue in all the statements which had issued from the office had been expected from deeper workings. Having said that, he might say that, which under certain circumstances would yield a certain profit. He might say that for two or three miles the Holway lode had produced almost from grass to the water level thousands of tons of lead, as far as the former proprietors had the means to go on; there was not much wanted to get into the richer zone-bearing measures, where it was expected that the lead would be found richer than at the shallow. There was one point where by the advice of Mr. Kemp and Mr. Parry the board agreed that men should be placed, and the result was that they came to a bed of shale. In former days shale was looked upon as putting a stop to lead, but in shallow workings where they could go down, but Mr. Kemp was not satisfied, and he set men to drive through the shale, and he was glad to say the result was most successful, and a specimen of the ore had been sent to the office which assayed 12 to 13 oz. of silver to the ton. They had passed through 40 feet of ore ground, the men, in putting a few blasts in the hanging side of the wall, had the satisfaction of going through 15 inches solid ore. In a letter received from the mine that morning Mr. Kemp said—"I am pleased to inform you that we are raising splendid lead, improving every day. We have cut lead to-day as black and solid as coal." If these results were attained from an offshoot of the property, what he expected from deeper workings. 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change for the present debt of 5000. Then 15,000 shares credited with 12s. 6d. paid are to be given in exchange for the shares of the present company in the proportion of five for each one share of 5s. now held. The remaining 7500 shares are to be held in reserve for opening up and developing the eastern portion of the property, or for other necessary works, and the 7s. 6d. per share more to be called up gradually in order "not to render any future liability irksome." This will give an available working capital of 5625, and, says the directors, "if this scheme be adopted the company will be relieved from the incubus of a debt of 5000, with but a small addition to the present nominal amount of capital." The addition will be 5000. The directors hope that with these advantages, and the favourable indications at the mines, the market value of the shares with 12s. 6d. paid in the proposed new company, will be far greater than that of the fully-paid shares of the present company in its crippled and unsatisfactory financial position. And last, these recited attractions should not prove sufficiently powerful the shareholders are ominously reminded by an italicized sentence that failing the carrying through of the directors' scheme "it must be distinctly understood that there will be no alternative but for the debenture holders to exercise their right of foreclosure, in which case the existing interest of shareholders will be entirely extinguished." The directors state that they have ordered the new machinery necessary for sinking the shaft another 10 fms. to intersect and work the rich lode which Capt. C. Williams has proved below the 30 fm. level, and which he reports as worth 10 tons per fathom. These are not very bright times for dragging money out of the pockets of disheartened shareholders, even by the allurements of "re-construction," and we shall be curious to learn what stimulating effect this circular will have upon those of Feteley Bridge.

With regard to Herodotus, referred to last week, it appears that, although the mine had not reached the prosperity afterwards arrived at, it was already paying good dividends when the offices were removed from London to Liskeard, the shares being then quoted at about 18s. The point of difference between the county and out-adventurers appears to have been the retention of the manager, who possessed the confidence of the London proprietors. The working of the mine will now be vigorously prosecuted. We believe two principal objects of the present adventurers is to sink the shaft below the 205, and in the 190 get through the "slide" which has cut off the lode.

At the Mining Institute of Cornwall, last week, an interesting and instructive paper was read "On Surface Condensers." For a long time the great importance of securing a better supply of water for the boilers of mining engines, in order not only to attain greater economy in working the engine and boiler, but to prolong as much as possible the life of the different parts, has been recognised, but beyond the application of various local nostrums little has been effected in the way of a remedy. Now that dull times and low prices for ores have forced upon our mine managers the necessity of economising in every department a general feeling has arisen that the time has arrived when more general attention should be given to the subject, and, thanks to the existence of the Cornish Mining Institute, it appears likely that this feeling will take practical shape. Our mine managers are beginning fully to recognise the necessity of bringing to their aid all the latest scientific discoveries and improvements. By such means, and by such means alone, can they hope to cope with the present condition of the metal markets. Most of our mines supply the boilers with ordinary mine water, and as this is always very impure, being charged with lime, mud, &c., or corrosives, a great source of expense arises from the deleterious effect upon the boilers. It is the object of surface condensers to remedy this evil. Some objection appears to have been started at the meeting of the Institute, on the ground that the water from the condensed steam enters the boilers in a distilled state, which one of the speakers regarded as a source of danger, but, as was happily pointed out by the Chairman (for the author of the paper was not present to give a practical answer to this objection), surface condensers are extensively used in the Navy and in large steamers without accidents occurring. Surface condensers do not, however, entirely prevent corrosive action, and this has been traced to result "from the grease from the engine turning and by boiling in distilled water," an action which it was stated could be corrected by mixing chalk or some other counteracting medium with the water, or by using a good mineral oil in place of ordinary tallow. The author claimed for surface condensers the following advantages:—1. Nearly total absence of incrustation or mud, &c., with even the most feeding water. 2. Exclusion of all corrosive substances which might be mixed with the feed water. 3. Prolongation of the life of the boiler, as it neither became overheated through scale on the plates nor eaten away by acids. 4. Increased steaming power, by always working with clean plates. 5. Saving the first cost of spare boilers, and the continually recurring expense of cleaning and relighting, &c. 6. Saving the cost of frequent repairs. 7. Enormously increased safety to life and property. 8. The saving effected in some instances by not having to pump condensing water. A practical suggestion for procuring pure water at first hand came from one of the speakers, who advocated the storing of water obtained from surrounding hills, and the use of windmills for pumping it into reservoirs. The pumping windmill has been heard of before in Cornwall, is still, we believe, extensively used in Yorkshire, and on economical grounds has a strong recommendation in its favour. There are good grounds for hoping that something practical will result from the reading and discussion of this paper at Camberne.

THE MINING MARKET.—The market has been more active the last week, and a very fair amount of business has been done. No very striking change has taken place in prices, but we have to note a good many transactions in Parys Mountain, which tempt investors at present low prices. In Richmond, which are lower, the Devon Consols, which have been pretty largely dealt in, in Don Pedro, which have risen again to 18s., 20s., and in Van Tankerville, Roman Gravel, Colorado, New Zealand Kapanga, Eberhardt, Port Phillip, and others. West Chiverton (with the late call of 3s. 6d. paid) have been dealt in at 2½, and the New Herodotus shares (1½ paid) at 32s. 6d. and 2½. At West Basset a profit of 30½ has been made on three months' working. A small advance in the price of tin would soon put this mine in the Dividend List again. At Wheal Basset a call of 6s. per share has been made; less on five months' working, 2500; debit balance, 7483. The old mine is to be abandoned, and operations confined to the working of the new part of the mine.

JAMES H. CROFTS.

FOREIGN MINES.

PORT PHILLIP AND COLONIAL (Gold).—The directors have received the following telegram, dated Melbourne, Feb. 7:—"Month ending Jan. 19—Gold obtained from company's quartz, 250 ozs.; gold obtained from tributary quartz, 1100 ozs.; profit, 1033s. Remittance, 600s."

RICHMOND CONSOLIDATED.—Telegram from the mine at Eureka, Nevada: "Week's run, \$54,000, from 1083 tons of ore. Week's produce of refinery, \$30,000."

RICKARD. Jan. 16: During the past week work in the mine has been retarded on account of the water pipes being frozen; we had no water for the boilers for two days. They are all thawed out again, and everything is going on as usual. The 400 cross cut has been drilled 28 ft.; the ground is changed—it is not as hard as it was, and is filled with seams of discoloured lime. We have about 50 feet more to connect with the rise above the 500 level. Drifting of the 400 quartzite will be resumed to-morrow. The 600 west drift is without change; still in hard limestone. It has been extended 18 ft., making a total distance from the shaft of 578 ft. The 600 north cross-cut has been extended 13 ft. in limestone, with occasional bunches of low-grade ore, and discoloured lime. The 800 winze has been sunk 15 ft. to bottom in quartzite. The 900 west drift has been extended 26 ft. in the same character of ground; it is now in from the shaft a total distance of 385 ft. The 1000 ft. level has been drifted on the contact westerly a distance of 15 ft.; the ground still looks favourable for ore. The two stone furnaces were closed down on Monday for the purpose of removing an accumulation of speiss which had formed in the bottom. The No. 1 will start off on Saturday and No. 2 on Monday, when I hope we shall be able to smelt without any further hindrance.

NEW QUEBRADA.—The directors have received the usual report from the superintendent at the mines for the month of November. The output for the month was 95 tons, averaging 13 per cent. A level has been commenced off Santa Barbara at the 1000 ft. level; in new ground, which had produced about 90 tons for the month, yielding over 17 per cent. of copper. Three shafts had been despatched from Tucuman with cargoes aggregating 1600 tons, and the works both underground and at surface were progressing satisfactorily.

PLACERVILLE (Gold Quartz).—Telegram from T. Price, Feb. 6: Ore struck does not pay much first 30 ft. 400 ft. level. Ore is improving in quality as it is being further developed. Ore is good, and will pay now. Commence crushing early in April.

ISABELLE (Gold and Silver).—Jan. 13: The grading for foundations of compressor and other tunnel buildings is completed, and the building itself partly erected. There is still a little outside grading to do for a wood track to boiler room, and also at the two ends to afford proper access. The opening of the tunnel, 12 ft. wide, was driven 42 ft. 5 in. during the week ended, by three men, working only during the day. I cannot get more men into the cut, and the snow and extreme cold prevents my working a night shift until I get under cover. By next Monday I hope to be in bedrock, when I shall be ready for the machinery.

DON PEDRO.—Mine captain's letter, dated Dec. 31: General Remarks: The ore has been derived from the bottom of the mine principally, and a little from south side openings. The ore has improved in quality since last advised. No. 8 Old Shoot, No. 2 Stope East: One cut obtained from this stope; the lode is large, and of good quality, owing to some soft layers of jacting above the lode here, which on emitting water, or coming in contact with it, makes it exceedingly troublesome for handling, hence slow progress at this point. In No. 3 stope east the lode is very large, of very good appearances and quality, but very hard for excavation. In No. 4 stope east a communication made from here to the 40 fm. cross-cut for ventilating the latter. In No. 5 stope one cut taken out and set, put in and made secure. The lode at this point is of fair size and healthy appearance, but of inferior quality to the No. 2 and 3 stopes on this side. No. 1 stope is the one started from two cap pieces between lodes of No. 3 incline on Dec. 23; this stope is opening out the southern side of No. 8 shoot; the lode is about 30 in. thick—i.e., the main lode, several other smaller branches about 3 and 4 in. thick intersect this run of ground, both above main lode and under it, or taken altogether the lode and lodey matter is about 5 ft. thick of fair quality. In No. 4 stope east, No. 8 new shoot, the level from this shoot towards Canoa is progressing slowly, as stowing and packing debris takes time.

South Side Openings.—The new stope opened above No. 2 stope east; the lode in same of fair size, but of inferior quality. Another opening made in No. 1 stope east presents a fair size lode, but of rather low quality. Exploration: The level towards No. 6 shoot progressing slowly, being operated on when force is available. Prospective and Running Work—Incline Sump Shaft: Fair progress being made notwithstanding lets with 60-ft. wheel. In the 40 fm. level cross cut the last set of laths penetrated through the bottom part of the lode under No. 4 stope. No. 8 Old Shoot, below the 35 fm. level cross-cut; the ground much softer and easier for excavation. Fair samples taken here. No. 2 Incline Shaft: Two sets renewed. No. 8 Old Shoot Stopes: Pillars of timber extended, &c.—No. 8 Shoot, New Level: Very little done here since last advised, in consequence of so many holidays, and consequent irregularity of attendance of natives. Roadways kept in order. The 60-ft. wheel idle 20 hours and 5 minutes for repairs, such as changing bolts; and on the 24th current side joint failed, and was repaired with six new clips, &c.—Machinery: Plunger-pole attended to, and other necessary repairs made too small to merit special mention.

Jan. 5: Captain Vivian reports as follows:—The production for December amounts to 3565 cits. Although this has slightly increased it is not yet satisfactory; we are, however, in hopes should everything go on well, to be able to report more favourably for the present month. Of course this will depend on, to a great extent, what hindrances we may have with the water being in the high stoppages for repairs to the wheel. Having a good mine at the bottom, I scarcely need state that it is very annoying so many drawbacks on this account, and the fact is we cannot rely on the working at the deepest points six hours without interruption.—Mine No. 5, Old Shoot: The lode in the different stopes so far being worked below the 35 is large, strong, and well-defined, showing every indication

of being productive to a great depth. Samples taken therefrom are very good. Since last advice nothing has been done in the lode in the 40 cross cut, but we expect to open further in it in a day or two, and will let you know the result later on. No other points call for remark.

SANTA BARBARA (Gold).—Mr. Hillee (Parl. Dec. 28) reports that the results derived from the operations up to date were equally as favourable as of the previous month, and a fair month's produce might consequently be expected for December. The native miners were, however, still somewhat irregular in their attendance, chiefly owing to the holidays.

PANULICILLO (Copper).—By telegram received from the company's manager at Panulicillo, dated Coquimbo, the 3rd inst., the profits shown by the Chili books for the six months ending Dec. 31 are given as equal to 13,000. Deducting the amount of interest payable here on debentures and London charges for the half-year the net profit to be shown by half-yearly accounts will thus be about 9500.

PITANGUL.—Mr. T. S. Treloar, (Pitangul, Jan. 2) reports that the water continued to interfere seriously with the prosecution of the adit. It was cut on Dec. 29, in the left hand level in the yellow clay formation or hanging wall of the lode, bringing down, as on previous occasions, a large quantity of sand, clay, and jacting, and at once putting a stop to all driving operations. For some weeks back the main body of this water had been pouring into the adit some 6 fms. back from the end between the entrances of the small levels, but it disappeared from here when tapped by the new level, and it was hoped that it would remain in the latter, which, however, it had not done, for it appears at one time in one level, and after a while almost ceases flowing for two or three hours, and then breaks away again either at the same point, or in one of the other levels with great violence, bringing fresh quantities of stuff down. The water rushing about from place to place in this manner, rendered progress for no considerable time level cleared, and an attempt made to resume driving from the water comes down again, accompanied with quantities of sand, and the work of clearing has to be repeated. With patience and perseverance, however, it is hoped and expected that the difficulty will be overcome, and there is the consolation of knowing that the lode is very near. The right hand level was successfully cleared, and driving again resumed, the water not having been so troublesome here since Dec. 31, and on the second day the mail was dispatched several samples of jacting were taken from the bottom of the end of this right hand level, which in every instance showed an edge of gold when washed in the batea or bowl.

MALPASO.—W. S. Welton, Dec. 19: Run No. 5, from Oct. 16 to Dec. 30, has produced 178 ozs. of amalgam; valued at \$1039.70. (Running was only carried on for four days during this run, the rest of the time being taken up repairing damages to the ditch, caused by the severe storm mentioned in Mr. Welton's last letter.) The gold obtained was nearly all from cleaning up the lower end of the sluice, 6-40 ozs. amalgam only having been obtained from running. After cleaning up four days were spent in moving machine and pipe, repairing and reeking lower end of sluice, and putting in 100 ft. of sluice for running in a narrow cut south of the present sluice. Since then about 200 hours have been run on tailings, and we are just beginning to see the bottom of the bank, and find that it is not hard. The number of men has been reduced to just those necessary for running, and the mechanic Hitchens has been suspended, so as to reduce the cost to the lowest point.

MALABAR.—W. S. Welton, Dec. 18: On account of the time taken to clean up I did not receive the mail until the 24th ultimo. On the 25th ultimo I commenced operations, repairing the ditch which had become filled at several points by small slides of ground, and blasting in the bed rock cuts to obtain grade. I managed to obtain 1 ft. of metal in 11 days, 7½ grs. —Pestarena District: 91 ozs. 8 dwts. In 10½ days I got in 236 hours, and then commenced cleaning-up, as the machines would no longer reach the back. I obtained gold valued at \$444.95 per cent., being a produce of \$1-85s per cent. per hour run. This is a lower result than that obtained for the previous run, but is accounted for by the banks being now 350 ft. from the head of the bed rock cut, and this space being almost level, so that it was impossible to get any amount of dirt to run off. The bed rock also dips down rapidly, causing a deep basin to exist between the back and the bed rock cut. Notwithstanding this, and that \$58.72s per cent. was expended in the ditch and in exploring for gravel on the west side of the mine, a good profit was made. The machines have now been moved ahead, and the water will be turned on on the 20th inst. The dirt will now be run through a cut which I deepened during the last run to the east of the main cut. I shall clean-up about Jan. 18, and hope to remit the board more than sufficient gold to completely cover the 2000. draw for—Explorations: These so far show that the gravel extends for a considerable distance to the west of the works, and also that the outcrop of the deposit is much richer for gold than the high banks.

SESTARENA UNITED.—Feb. 1: The following are the returns of gold for the past month:—Val Toppa District: 225 ozs. 17 dwts. 10 grs., from 404½ tons of ore; yield per ton, 11 dwts. 7½ grs. —Pestarena District: 91 ozs. 8 dwts., from 142 tons of ore; yield per ton, 12 dwts. 20½ grs. Total from both districts, 320 ozs. 3 dwts. 10 grs., from 546½ tons of ore amalgamated. Average yield per ton, 11 dwts. 17 grs.

PONTGIBAUD.—Feb. 1: Roure: The sinking of the engine-shaft below the 175 continues to go on satisfactorily. The 175 metre level south yields ½ ton of ore per current metre. The same level north is unproductive. The 150 metre level south is in soft ground; lode yields stones of carbonate of lime, spotted with lead ore. The same level north is in wet, disordered, and poor ground. The winze below the 100 has been holed to the 150 rise, thereby establishing a good ventilation. The 100 cross-cut east has intersected the lode, where it is 1-20 metre wide, yielding iron pyrites, but no lead ore of value. We have suspended this end to cut a trip flat, in order to expedite the bringing away of the stuff from the 100 metre level. This work will occupy our men a month, when driving will be resumed with all possible speed. The 80 metre level south, on Virginie's lode, is unproductive. The same level north yields a little saving work. The 60 north yields ½ ton of ore per current metre. The 40, south of Brugere's winze, yields coarse quality saving work. The 20 level south yields ½ ton of ore per current metre. The 40 metre level south, from Mill shaft, yields ½ ton of ore per current metre. The 20 metre level south, on the eastern part of the lode, yields stones of ore irregularly. The adit north from Virginie's workings yields ½ ton of ore per current metre. At Micoche the tribute ground in back of intermediate level maintains its yield.

La Brousse: The new engine-shaft below the 120, goes on well. The 140, south of Basset's shaft, yields ½ ton of ore per current metre. In the 140 metre level south we have had a crush, which has hindered the undercutting of the lode behind this end, but the lode here has yielded 1½ ton of ore per current metre. The 100 rise has been holed to the winze from the 80 metre level, and the driving of the 100 and south resumed, where the lode yields stones of ore crust irregularly. The 80 south is unproductive. The 60 north has been holed to the level on the main lode, making a good length of ore ground available for tribute pitches. The adit south continues in favourable ground.—Pranal: The 110 metre level, north of St. George's shaft, yields ½ ton of ore per current metre. The same level south is unproductive. We have holed the rise behind this end to the winze from the level above, laying open a piece of productive ground for stopping quality saving work. The 80 level south, on the eastern part of the lode, yields ½ ton of ore per current metre. The 90 south, on the main lode, yields ½ ton of ore per current metre. The 70 metre level north yields ½ ton of ore per current metre. The 50 north is unproductive. We have set to cut out the eastern part of the lode behind this end, which yields ½ ton of ore per current metre. The 50 south opens ore ground, worth ½ ton of ore per current metre.—Surface: The weather during the past month has been favourable for the season, and our washing operations have been carried on uninterruptedly. Our samplings have amounted to 244 tons.—Lavergne: The lode in the adit level continues to present a strong appearance, and yielding stones of silver-lead ore mixed with blende.

CAPE COPPER.—The Spectacle Mine report is received. The 53 fm. level south has intersected some good copper ore ground, producing about 2½ tons per fathom; this point corresponds with the productive ground in the stope above. In the 46 stope in the back is producing about 3 tons of ore per fathom, and the winze sinking below the 46 is producing good stones of ore. Return for December, 50 tons; assay not received.—Bills of lading received: 380 tons of ore per Gleam, and 580 tons per Florence.—Arrivals at Port Nelloth: The Glamafon and the Balli Arrivals: Green King, and Gleam.—Sales of Ore by Public Tender: On Jan. 15, 545 tons, at an average of 11s. per unit, realising approximately 10,130. On Jan. 29, 576 tons, at an average of 10s. 10d. per unit, realising approximately 9550. Put forward for sale by public tender on the 12th inst., 535 tons of ore.

The following reports were received too late for insertion in their proper place: **WHEAL GRENVILLE.**—T. Hodge, Feb. 5: Good's shaft is in regular course of sinking; now down 13 fms. below the 150. The 150 east end produces stamping work. The 140 east end is worth 9½ per fathom, and likely to improve. The winze sinking below said level is worth 8½ per fathom. The 140 west end is worth 5½ per fathom. The 140, east of the western shaft, is worth 6½ per fathom. The 130 east end is worth 6½ per fathom. No other changes. The machinery is working very well, and all surface work going on in a satisfactory manner.

SOUTH TOLARNE.—Wm. Rich, James Knottwell, Feb. 5: We have a promising looking lode in the back of the 38 cut, but at present it is unproductive. The 38 east end is improved; the lode is very porous, and carries some native copper and good stones of grey ore. The ground, too, is very easy for working.

SOUTH CONDURROW.—Wm. Rich, W. Williams, H. Abraham, Feb. 4: The 93 is drained to the bottom, and operations will now be resumed in this level. The 80 east end is worth 10 per fathom. The rise in the back of this level is worth 18½ per fathom. The lode in the 70 east end is improving, and carries good stones of tin. The lode in the Plantation shaft, below the 70, is worth 10½ per fathom. The 70 west end is worth 6½ per fathom. The rise in the 60, east of King's, yields low quality tinstone. The rise in 50, east of King's, is worth 10½ per fathom. The lode in the back of the 50, east of Plantation shaft, is worth 25½ per fathom. We have not yet cut through the lode in the 50 west. The 40 end, east of engine-shaft, is worth 7½ per fathom. The 40 west is worth 1½ per fathom. The 30 east is worth 8½ per fathom. The back of the 30 west is worth 10½ per fathom.

SUSPENSION OF SOUTH CROFTY.—The adjourned meeting of the adventurers of South Crofty was held on the mine this afternoon to consider the present financial position. Mr. Lean, the pursuer, stated that since the last meeting 65 shares had been relinquished, making a total of 165. The mine now consists of 723 shares. He anticipated no difficulty with respect to the overdraft at the Cornish Bank. Capt. Josiah Thomas, the manager, reported that owing to the water they had not been able to sink the winze to prove the junction of the lodes as resolved upon at the last meeting. With a fair price for tin the north lode would prove pro-

ductive. On the motion of Mr. E. H. Rodd, seconded by Capt. Brunton, the following resolution was adopted:—"That in the present state of the metal market, and no improvement in the price being apparent, the operations of the mine be stopped below the 160 fm. level for the present, it being reported that when the market improves the works of the mine may be resumed, and the water forked in about ten days or a fortnight." Two pairs of men are to work on tribute on copper, and with the addition of a man to look after the engine this will be all the work done on the mine.

FUEL—ITS COMBUSTION AND ECONOMY.*

The thoroughly practical character of the writings of the late Mr. Charles Wye Williams and Mr. T. Symes Prideaux, in connection with the combustion of fuel, has long been recognised; and Mr. D. KINNREAR CLARK has now rendered a very useful service to consumers of coal in bringing together in one cheap volume of Weale's Rudimentary Series all the more important portions of the information given in Mr. Williams's treatise on the combustion of coal and prevention of smoke; Mr. Prideaux's treatise on the economy of fuel; and his own excellent record of recent practice in the combustion and economy of fuel, coal, coke, wood, peat, petroleum, &c. It was Mr. Charles Wye Williams who first succeeded in convincing practical men that although the consumption of smoke is an impossibility, a relative loss of power contained in the fuel is represented by every cubic foot of smoke which escapes from the chimney, and the prevention of smoke is easy when a proper quantity of air is supplied to the fuel in the furnace. Mr. Prideaux showed the advantage of heated air as compared with cold air for supporting combustion when the maintenance of a high temperature in the furnace is desired; and Mr. Clark has carried on the consideration of the subject to the introduction and perfecting of gas furnaces. Mr. Clark's additions are really a complete treatise of themselves, and will supply all the most recent information on the progress making for the simplification of the methods of securing the utmost possible economy in the combustion of fuel. The importance of this at a time like the present, when we are run so closely by foreign competition, cannot be over-estimated.

* "Fuel—its Combustion and Economy." By D. KINNREAR CLARK, C.E. London: Crosby Lockwood and Co., Stationers' Hall court.

THE STEAM-ENGINE OF THE FUTURE.—Under this title Mr. JOHN BOURNE, the well-known engineer, has just published a short pamphlet in which he gives his views as to what will be the leading feature of the Steam-Engine of the Future, and the future of the steam-engine as applicable to agriculture, to manufactures, to the production of the electric light, and to domestic uses. Many of his views are unquestionably peculiar, not the least remarkable of them being those with reference to compound engines. After noticing the fact that in some cases in factories an old low pressure engine has been supplemented by a high pressure cylinder, a stronger boiler being at the same time introduced so as to be able to run the new and old engines together in the manner of compound engines, Mr. Bourne suggests that instead of compounding in this clumsy fashion the same end could be more easily and inexpensively attained by introducing a high pressure high speed engine into any convenient part of the mill or factory, and coupling this engine by means of a belt to any convenient shaft running at a high speed, the educted steam being led by a pipe to the old engine to work it. Mr. Bourne thinks that the application of the steam-engine to the propulsion of carriages, omnibuses, and cabs, is now only hindered by its too heavy weight and too high cost.

JOURNAL OF SCIENCE.—The February number of this magazine, which is henceforth to be issued monthly instead of quarterly, contains nine interesting articles. The first, entitled Progress, admirably shows the similarity between man and brute; there are two articles on Electric Lighting, and one on the Compound Achromatic Microscope, which are well worth reading. The notices of books, correspondence, &c., are of the usual character. The monthly issue of the magazine will be advantageous, as it will enable the record to be kept closer to the discoveries and progress made.

CASELL'S PUBLICATIONS.—Part 15 of "Science for All" contains the conclusion of the article on the Chemistry of Water, and an interesting article on Nuggets and Quartz, by Mr. G. A. Lebour, lecturer on geological surveying in the University of Durham College of Physical Science. Mr. R. A. Proctor contributes a paper on The Sun our Fire, Light, and Life, in which he gives some interesting particulars concerning the solar spectrum, the chromosphere, and solar prominences. Mr. W. A. Lloyd treats of a Fish in the Water, and there are also papers on Firing a Shot, by Mr. H. B. Pritchard, and a Microscopical Biography, by Mr. W. H. Kesteven. Part 13 of the "Great Industries of Great Britain" contains a continuation of David Bremner's treatise on Cotton; and of Charles Hibb's Iron and Steel, which deals with the construction of rifles. The other articles are—Industrial Art, No. 2, by J. F. Robertson; Hemp, Flax, and Jute, No. 12, by David Bremner; Shipbuilding, No. 13; and Wool and Worsted, No. 12, by William Gibson. Part 26 of Knight's "Practical Dictionary of Mechanics" extends from Enamelled (sic) Photograph to Felly-Sawing Machine, and includes a short article on Explosives amongst others which will be read with interest by miners who may consult the work.

THE UPPER TEN THOUSAND.—The new edition (that for 1879) of Kelly's Handbook to the Upper Ten Thousand has just been issued, and judging by a reference to 20 or 30 changes which could be quickly remembered as having taken place during the year it has certainly been carefully and accurately revised down to the latest date. To secure completeness upon the first publication of a work of this character was, of course, out of the question, but year by year additions have been made, until at present it leaves nothing to be desired. The list includes the names of all who have any definite position in society, whether from hereditary rank, titles or orders conferred upon them by the Sovereign, their position as members of Parliament, or their position in the learned professions or in the service of the State. In 1877 the names of deputy lieutenants and magistrates were included, and in the following year Queen's Counsel, Serjeants-at-Law, presidents and vice-presidents of learned societies were added, whilst in the present edition the owners of most of the principal seats in England have likewise been inserted. The Handbook to the Upper Ten Thousand should be in possession of everyone associating with the classes to which it refers, if for no other purpose than that of preventing annoying blunders, which sometimes happen from want of knowledge as to the exact position which a given individual occupies; it will prove alike useful and reliable.

AN IMPORTANT MINING DECISION.—The litigation pending in the United States Circuit Court between the owners of the Colorado Central lode and the owners of the Equator, came up in court again, in Denver, recently, and Judge Hallett delivered an elaborate opinion on the law points involved, and refused to dissolve the injunction heretofore granted against the Equator company. To appreciate the effect of this decision, it is well enough to advert to the facts developed in the case. The Equator lode was discovered July 25, 1866, and the Colorado Central in 1872. The owners of the last-named lode applied for a patent in 1874, and received a patent in 1875. The owners of the Equator filed an adverse claim, brought an order of ejectment, but were nonsuited, and a patent was thereupon issued for the Colorado Central lode. Although they have the junior location, they have the oldest patent, and the court held that when the Equator parties failed to make that adverse claim good, they waived their rights of priority, and can not now be heard to question those of the owners of the Colorado Central, although their location is junior. From this decision our miners will learn that a patent from the government is entitled to severe respect—that if a person claims that he has rights within a location sought to be patented, he must file an adverse claim and prosecute it with success to final judgment, or he loses all the rights he has. This is a pioneer case on this subject in Colorado, and settles the law as to the conclusiveness of government patents.

—Engineering and Mining Journal (New York), Jan. 11.

* Much inconvenience having arisen in consequence of several of the Numbers dating the past year being out of print, we recommend that the Journal should be filed on receipt; it then forms an accumulating useful work of reference.

The Llanzavel Lead Mining Company

(LIMITED).

CAPITAL £30,000, IN 6000 SHARES OF £5 EACH.

£1 on application; £1 10s. on allotment.

Incorporated with Limited Liability under the Companies Acts, 1862 and 1867, by which the liability of the shareholder is strictly limited to the amount of his shares.

DIRECTORS.

Colonel ARTHUR NEED, J.P., Fountain Dale, Mansfield, Notts.
JAS. CROSSLAND, Esq., Longwood House, Fixby, Huddersfield.
J. HENRY OUTHWAITE, Esq., Bedford Park, Chiswick.

BANKERS—NATIONAL PROVINCIAL BANK OF ENGLAND, Lincoln's Inn, Carey-street, London.

SOLICITORS—Messrs. BLAKE AND WEALL, 22, Surrey-street, Strand, London.

CONSULTING ENGINEER—R. J. FRECHEVILLE, Esq.

SECRETARY—JOSEPH J. OUTHWAITE.

REGISTERED OFFICES,—4, AGAR CHAMBERS, AGAR STREET, STRAND.

PROSPECTUS.

This company is formed for the purpose of acquiring the lease and plant of and for working the valuable mines, veins, lodes, and seams of lead and all other metallic ores in and under the farms and lands known as Talley Demeane, Penygarey, Gilynfawr, and Bwlyrhryd, situate in the parishes of Talley and Llanzavel, in the county of Carmarthen, and containing about 201 acres. The company have also taken other powers in the Memorandum of Association for more advantageously working the mines comprised in the said lease or under any adjacent lands.

The lodes of the mines are a continuation westward of the celebrated lodes of the Nant-y-Mwyn Mines, which have been worked to immense profit. The sett is extensive, running about one mile from east to west, and the same extent north and south, and contains a number of well-defined lodes.

The property is held under lease, dated 16th November, 1878, for 21 years from Michaelmas, 1878. The yearly rental is £200, merging into a royalty at the low figure of 1 lb. 10d.

Plans, showing the exact position of the lodes, with reports by eminent and practical mining engineers, may be obtained, and specimens of the ore seen at the company's offices.

The mines are about seven miles from the railway stations of Llandilo and Talley Road, so that the produce can be conveyed thither at little expense. The projected railway from Llandilo to Lampeter will pass within a quarter of a mile of the mine, and will when constructed be of great advantage to this property. The extent of work already done may be seen from the plans and reports. It includes a deep adit level driven upwards of 250 fathoms, which effectually drains the mine, thereby saving the expense of pumping machinery. Two other levels have been driven above this. A shaft has been sunk from the surface connecting these levels. All these works have been done at a large expenditure. Judging from the quantity of ore the mines have already yielded, and the present existing defined lodes, together with the favourable reports of experienced mining engineers, it is confidently anticipated that with a further moderate outlay in the erection of necessary machinery, and for further development, the mine will be productive and profitable.

The services of Mr. R. J. Frecheville, Associate of the Royal School of Mines, who has had ten years' practical experience of mining, both at home and abroad, have been secured as consulting engineer for the company.

The vendor has agreed to dispose of his interest for £15,000, of which £1000 is to be paid in cash, upon transfer, and £1000 by instalments—viz., one moiety in six months and the other in twelve months. The balance in paid-up shares of the company, which shares shall not be transferable until a dividend of 5 per cent. has been paid to the ordinary shareholders out of profits, nor until 1000 other shares shall have been applied for and allotted.

The only contract entered into on behalf of the company is dated 23rd December, 1878, and is made between John Henry Outhwaite of the one part, and Alfred Stephen Groom for and on behalf of the company of the other part, being the con-

tract for the purchase of the property and plant, which, together with the Articles of Association, may be seen at the offices of the company.

Applications for shares may be made to the bankers on the form enclosed in the prospectus, or to the Secretary of the company. Should no allotment be made the deposit will be returned without any deduction; and should a smaller number of shares than those applied for be allotted to any applicant the balance of his deposit will be applied towards the amount payable on allotment.

Prospectuses and forms of application for shares may be obtained at the offices of the company, or of the bankers.

No promotion money whatever will be paid. The preliminary expenses will be confined to the amount actually expended in the formation and registration of the company.

EXTRACTS FROM THE REPORTS OF WELL-KNOWN MINING ENGINEERS.

Capt. JOSEPH EVANS, in his report, dated April 11, 1878, says:—There are four lodes, running nearly east and west. I would recommend you to open the engine shaft to deep level, where you will find a branch of lead ore yielding 3 tons per fathom. I have seen in the stopes 14 in. of solid lead. The mine bears evidence for itself, and only requires a little time to make it one of the most profitable in Wales.

Also, Capt. W. HANCOCK, in his report, dated Nov. 30, 1878, says:—In my opinion you will be amply remunerated for your outlay (for further information see plan and section recently made). A great feature is the mine can be worked at a considerable depth without the aid of pumping machinery.

R. J. FRECHEVILLE says:—I visited your Llanzavel Mines, near Talley, South Wales, and found that you had in your No. 4 level a vein showing 4 in. of lead. As this is at a depth of not more than from 15 to 20 fms. below the surface, and the hill rising above you gives a large quantity of backs, I consider it to be an exceedingly favourable prospect. In the No. 2 and No. 3 levels there are at least two other veins; from their appearance and the general character of the ground, I am of the opinion that they will amply repay further explorations. The No. 1 or deep adit will drain these mines for some years to come, and thus obviate the necessity of erecting pumping machinery. The kilns which form the country rock, and the elvan course which is in close proximity to your mines, are favourable indications of this class of mine. The other conditions of working are favourable. I think from what I have seen that you have a valuable property.

Capt. W. T. BRYANT, in his report, dated Dec. 20, 1878, says:—You have in this mine a valuable property, and from appearances I am of opinion that it will justify the outlay of capital for development, and well worthy the consideration of capitalists as a good investment. I have confidence in recommending it as such,

quired, and should the present holders not take up all the shares there will be no difficulty in placing them so as to raise the requisite funds. It will not take many months to drive 15 fms., and a rich lode under the great open cast would soon send shares up to 34 each.

MORFA DU.—When we first called attention to the advisability of working this mine we estimated that it would take about 7000 tons to reach the blue stone at a deeper level, and we believe it was reached for less than 8000, and already 6000 of stuff has been sold, and contracts entered into for all that is raised for six months certain at a fixed price. This will leave a good profit, and by the end of the contract more will be known as to the exact value of the stuff. The accounts show that only 7000 shares were issued, and upon these the last instalment of 8877 7s. 6d. is due, which with calls unpaid (479 12s. 6d.), ore sold (5000 10s.), cash at bank (125 9s. 9d.), and 32 16s. 2d. interest and discount make the assets 2025 15s. 11d. against a liability to Parys Mountain of 10000, and sundries 117 1s. 5d. The January return (not included) is 173 tons.

HERODSFOT.—In the year 1845 we introduced the Herodsfot Mine in 256 shares of 5/ each, and allotted them among our clients at that price. They were afterwards increased to 1024 shares, and in a few years rose to 40/ each, or over 160% for the original 5/ share. The mine has paid in dividends about 70,000. After a good discovery had been made in the mine, and shares had risen to about 18/ for 1024 shares, many of the London shareholders sold out, and the majority of the mine was bought up by the local shareholders, who, thereupon, through personal feeling against the local manager, discharged him, and did away with the London office.

A few months ago the manager, who held nearly one-seventh of the mine, died, leaving all his interest to his son, who is under age; and as there was no working capital in hand, and the shaft had to be sunk another 10 fms., the shareholders had to face a financial difficulty, with a large interest upon which, under the circumstances above stated, no call would be responded to. Thus they determined to sell the whole mine and materials as a going concern, and it was put up and purchased for 2000, and the new company, with a London office, in 3000 shares, and 10000 working capital, has been joined by the principal shareholders in the old company.

There is a good course of ore in the bottom level, which has been gone over for 30 or 40 fms. long, and the shaft, instead of being sunk perpendicularly, and with a long and expensive cross-cut—as under the old company—will probably be sunk on the course of the lode. The reserves in the mine have been estimated at 80,000 to 10,000. The ores are rich for silver, and formerly brought 20/ per ton. The mine, therefore, is not looked upon as a mere speculation, but one that will make immediate returns, may soon make good profits, and the public have again an opportunity of joining at a low price.

WIRAL CREBOR.—The 108 east, or the pioneer level into the new ground, which, as we said before, lies between two great courses of ore, has now improved to 5 tons of good copper ore per fathom.

D'ERESBY MOUNTAIN.—The No. 2 level driving to get under the rich gossan lode (Fuchuslas) in No. 1 is improving, and bids fair, the agent states, to become of great value.

RICHMOND.—A few years ago America was among our best customers for lead; of late she has raised not only enough for her own wants, but something more to import here, and the consequence has been a fall of 4/ or 5/ per ton in our English ore, much to the injury of our home mines. One of the greatest offenders in this way has been the Richmond, whose returns of lead have been enormous, and it is, therefore, only natural that we should have an eye to it and its probable returns for the future.

ABERLILLYN is opening out even beyond expectation, and the extensive machinery, all on the mine and paid for, will commence dressing ore for market in about six weeks. If we are rightly informed, and we have no reason to doubt it, this mine will soon take an important position, and shares probably reach a high price this year. These and D'eresby Mountains should be bought at once, but it is useless, however, recommending things in these times. When shares take a rapid rise the public rush in and buy, but not before, and our correspondent after asking our advice, as so many do, will doubtless wait a bit, and perhaps too long.

HERODSFOT.—Eighteen men here, under the late limited workings, have been raising 15 to 20 tons of lead per month. The present company, according to the agent's report, have set six men to drive the bottom end; and 18 fms. behind the end two stopes have been set at the low price of 35s per fathom. Here there should be a lot of ore ground to take away.

MR. WILLIAM H. H. WATSON having had some years' experience in Practical Engineering and Mining in Cornwall, as well as two years' practice in the London Stock and Share Markets, begs to offer his advice and services to Shareholders and Intending Investors in Mines, and in the Purchase and Sale of Shares.

W. H. H. W. has Special Business in HERODSFOT Shares, which are likely to rise in value.

Address: W. H. H. WATSON, 1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON, E.C.

Mining Correspondence.

BRITISH MINES.

ABERLILLYN.—John Roberts, Feb. 6: No. 2 adit driving north is looking better than it has done for some time. On the footwall we have a thickness of 18 inches almost solid blende, and the rest of the end is looking well. The other part of the lode, which we are cutting through behind this end, is also looking well for blende. I am thinking that we should put two or four men to cut through the lode on the south side of the cross-cut as well. The winze in the bottom of No. 1 adit is looking well; we broke to-day some good stones of lead, as well as blende. We have fixed the frame of the wheel-pit, and have got on the heavy axle, which will be put in its place to-morrow. We have commenced erecting the mill, which work, as well as the completion of the water-wheel, will be hastened on with all possible speed.

ASSHETON.—Joseph Garland, Feb. 5: Lindow's Shaft: Pumping was commenced on the 28th ult., and the water drained as far down as the shaft is clear—about 8 fms. below adit by the 28th.—Gandy's Shaft: There are four pitches working south of this shaft—one in the bottom of adit, and three in the bottom of the 8 fm. level. These are all yielding a fair quantity of ore.—Mawr Shaft: Good progress was made last month in driving the 20 fm. level on north and south lode, the level being extended 4 fms. 3 ft. 9 in. There are three pitches being worked in the back and one in the bottom of the 20. A pitch has recently been started in the back of the 40 near and west of Mawr's.—Boundary Shaft: The 50 east was extended last month 3 fms. 1 ft.; the lode is about 15 in. wide, and yields good lumps of lead ore, and saving work. It is in every way worthy of speedy development. The lode in the back of this level has much improved during the month. The weather has been sadly against the dressing during the month, but we may, we trust, expect improved weather shortly.

BETWYS-Y-COED.—H. T. Haley, Feb. 6: Setting Report: To drive the 20 east, by four men, the month, at 45s. per fathom, and likely for a good improvement, judging from the ground in deep adit. To drive a cross-cut in deep adit, by six men, for 2 fms. or cut the lode; at present the lode has been discovered by some cross branches of spar, but from the appearance of the ground, and as water issues from the end, I think the lode is near. To rise in back of deep adit, by two men, the month, at 45s. per fathom, and will further improve, as there is a good lode in the shallow adit in advance of this. To stop by Pulley shaft, by four men, at 30s. per fathom; the lode at this point is worth fully 30 cwt. per fathom. Now that the weather has moderated we have again started the pumping wheel, and if the present mild weather continues I hope to start the dressing machinery, &c. The shaftmen are making good progress in the shaft, &c., also the carpenters with their work.

BLAEN CAELAN.—Jonathan Pell, Feb. 6: The frost changed into a thaw on Tuesday; since that date we have been able to keep the wheel at work pumping. Water is above the 30 fm. level. There is consequently nothing new I can communicate.

BLUE HILLS.—S. Bennetts, P. Bennetts, Jan. 31: The sinking of the Blue Burrow shaft is progressing satisfactorily, although the ground is somewhat harder than it was above the gossan. The north lode in the 30 east end, towards that shaft, is opening out very well, and worth 12/ per fathom. Two stopes in the back of this level are worth 6/ and 8/ per fathom respectively.

BODIDRIS.—H. Hotchkiss, Feb. 4: We are not yet through the hard bar of ground in sinking the new engine shaft, so I have no alteration to report. The 45 east of this shaft, is being driven through a large and highly promising lode, which is bearing slightly more to the north. No change to report in any other part of the mine.

CLEMENTINA.—John Roberts, W. Sandoe, Feb. 5: We shall finish next week the masonry for the bearing for the water-wheel, when we shall at once put on the wooden bed and commence erecting the wheel, which is now close by the pit, and all the parts cleaned ready for putting together. We shall want some few new arms for the wheel, and also new buckets and locking. As the latter will be comparatively inexpensive we think it better to put new than to replace the old. The shaft is in readiness, and one lift of pumps 8 in. diameter, and all the rods for them, have been prepared, and we are awaiting our commands with reference to the other things, the list of which we have already sent you. We expect to commence pumping in 10 weeks, providing that we can get the materials in time that we want. The stope in the adit level is without change, producing good lead.

COMBAMARTIN.—T. Harris, T. Comer, Feb. 6: The lode in the north-west end adit level is about 3 1/2 ft. wide, principally of kilias, with small seams of lead and blende, but not enough to value. In the adit cross-cut the end is still in lode-like ground, which has been for the past 2 fms., and we are not yet through it, but it has a highly mineralised appearance, containing blende, gossan, and muddle, with nice spots of lead and blende, and we think we are near the intersection of a caunter lode with an east and west lode, and as the ground has such a kindly appearance we have taken out two men from the cross-cut and two from the north-west end, and placed them to open on the new lode east, as we think the two lodes will soon be together.

DE BROKE.—J. Phillips, Feb. 5: I am pleased further to inform you that the lower pumping-wheel has been at work since Monday afternoon, and that good progress is being made in draining the mine. We are now clearing and standing the leads to the large pumping and crushing wheel. We have had heavy rain to-day.

DENBIGHSHIRE CONSOLIDATED.—R. Prince, A. Francis, Feb. 6: Our predictions are verified, and you will doubtless be pleased to hear that a communication has been effected to-day between our 112 and 80 west; we can, therefore, work this ground at one-half the cost, and also secure ventilation to both the 60 and 80. In our 112 east we have discovered a joint or vein, and there is a little lead coming in on the stone; this may be the outskirts of a great discovery.

D'ERESBY CONSOLS.—John Roberts, Wm. Sandoe, Feb. 5: We are making better progress this month in the end driving towards the Cobblers' lode. Since the time the men have driven the extent of 3 fathoms, and we let to them again till next setting day at 10/ per fathom. We have now driven in all from shaft about 18 or 19 fathoms, which, according to the measurement of the distance at surface, leaves about 7 fathoms more to drive to cut the lode.

D'ERESBY MOUNTAIN.—J. Roberts, W. Sandoe, Feb. 5: Since last week there is no change to note in No. 1 adit end; the lode seems to be a little disordered, but we have reason to believe it will soon change for the better, as it is wetter, and contains good patches of lead and blende. No. 2 end has very much improved in appearance since we started; the lode is 3 ft. wide, composed of sulphur, blende, and carbonate of lime, gossan, and spots of lead, showing altogether that the lode bids fair for becoming shortly one of great value, seeing we shall be getting under the run of the rich gossan and lead in No. 1. The rise at No. 3 is now up about 4 1/2 fms. There seems to be a poor neck in the lode just now; we had good lead for some time after starting, and there is good lead to be seen in the old sink at No. 2 over it as far as we can go down (the bottom of which is said to be very rich), so we may expect that the cutting off of the lead in the rise is only temporary. In the stope at No. 4 the clearing away of the stuff from under the men's feet has interfered for the present with the stope. We have now only two men that can work the stope, and part of the time is engaged in blasting the large rocks before they can be thrown down for tramping. The party they work on—the north end of the stope—is yielding good work for the crusher. We have sunk the Gorse shaft from surface about 4 fms., which is about half through to No. 4. We have also put in a good collar of "clue" timber about the shaft. We hope by the next monthly meeting to be able to report the completion of this work. We have been engaged in No. 5 this month repairing and opening a piece of the level that had not been completed near No. 2 shaft. The frost had begun to make a serious difference upon it, and we were afraid to let it any longer; from its appearance to-day we hope to get through it by the end of the present week. We purpose putting up directly a horse pulley at No. 3 shaft, so as to accelerate the clearing of the level at the north end, and as soon as we get the Gorse shaft through to No. 4, and the engine erected, we shall try to clear back from the south end to meet the clearing from No. 3 shaft, and if we can possibly do this we shall make short work of it. Although we have been able some days to do a little crushing, yet the frost has prevented our being able to finish off for the ore bin, but if the present weather continues we shall be able in a few days to do some tons.

DUBBY SYKE.—W. Vipond, Jan. 31: There is no change to report in the rise. I shall start the men next week to drive a short distance east from the rise on the vein with the limestone on both sides.

EAST CRAVEN MOOR.—David Williams, Feb. 6: New Shaft: The 54 is extended east of shaft 3 fms. in a vein 5 ft. wide, filled with gossan, sulphate of barites, and large boulders of galena; worth over 40 cwt. per fathom, and promising for a further improvement. The 54 west is extended 9 ft. in a vein 3 ft. wide, and worth 20 cwt. of lead ore per fathom. The cross-cut south to the parallel veins from the 42 is extended 27 fms., driven during the month 5 fms.; we have just intersected the north-west and south-east vein about 1 ft. wide, composed chiefly of spar intermixed with good spots of lead ore. The 30 west is extended on the main lode 15 fms. in a vein 2 ft. wide, and producing occasional stones of ore. The 54, west upon Hardgate vein has been driven during the month 3 fms. 2 ft. The vein here has greatly improved during the last few days, being fully 4 ft. wide, and producing good saving work for dressing. With the present favourable change of weather I hope to be able to resume dressing in a day or two.

EAST VAN.—W. Williams, Feb. 5: We are still pushing forward the cross-cut at the 25, into the north lode. We have now a change of ground more congenial for the production of lead ore, and this end shows signs of the countermine set to six men, at 55s. per fathom. We have suspended operations at the 70 fm. level, at Tempest shaft, and removed the men to drive the 25, east of engine-shaft, where we had driven some 4 or 5 fathoms; but thinking at that time that our best chances lay westwards, we directed our operations in that direction. In the driving referred to the ground is favourable for production of lead ore. In a cross-cut in the deep adit, at a point about 50 fms. east of the engine-shaft, we cut a very strong feed of water, accompanied by indications that we were skimming the top of ore ground, but the water was too quick to allow of sinking with barrels. The driving of the 25 east, which we now propose doing, will be a grand trial of this point; set to six men, at 80s. per fathom.

GAWTON COPPER.—G. Rowe, G. Rowe, jun., Feb. 1: The lode in the 105, west of cross-cut, is 5 ft. wide, of a very kindly appearance, principally composed of muddle, mixed with ore to the amount of 3 tons per fathom. The lode in the stope in the bottom of the 105, west of winze, is worth 7/ per fm. The lode in the stope in the bottom of the same level, east of said winze, is worth 10/ per fathom. The lode in the stope in the back of the 105 east is worth for muddle and ore 8/ per fathom. The tribute department continues without change. Our sampling yesterday is computed at 137 tons of copper ore.

GOBBERD AND MERLILLYN.—W. Edwards, Feb. 6: We have not intersected the east and west lode in the cross-cut at the 70, but I am quite sure the vein is

WATSON BROTHERS' MINING CIRCULAR.

WATSON BROTHERS,
MINEOWNERS, STOCK AND SHARE DEALERS, &c.
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

Ten years ago the weekly information which had previously been published for a great number of years in WATSON BROTHERS' Mining Circular was transferred to the columns of the *Mining Journal*, with the following announcement; which is now reproduced in consequence of the numerous letters and enquiries handed to them of late in reply to one which appeared in the *Journal* on the Clementina Mine.

In the year 1843, when mining was almost unknown to the general public attention was first called to its advantages, when properly conducted, in the "Compendium of British Mining," commenced in 1837, and published in 1843, by Mr. WATSON, F.G.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," "Cornish Notes" (first series, 1862), "Cornish Notes" (second series, 1863), "The Progress of Mining," with Statistics of the Mining Interest, annually for 21 years, &c., &c. In the Compendium, published in 1845, Mr. Watson was the first to recommend the system of a "division of small risks in several mines, ensuring the success in the aggregate," and Messrs. WATSON BROTHERS have always a selected list on hand. Perhaps at no former period in the annals of mining has there been more peculiar need of honest and experienced advice in regard to mines and sharedealing than there is at present; and from the lengthened experience of Messrs. WATSON BROTHERS they are emboldened to offer, thus publicly, their best services and advice to all connected with mines and mining.

Messrs. WATSON BROTHERS are daily asked their opinion of particular mines, as well as to recommend mines to invest or speculate in, and they give their advice and recommend mines to the best of their judgment and ability, founded on the best practical advice they can obtain from the mining districts; but they will not be held responsible, nor subject to blame, if results do not always equal the expectations they may have held out in a property so fluctuating as mining.

The great extension of mining business, the difficulty so often complained of by country shareholders in getting accurate and disinterested information as to the state of Cornish and Foreign Mines, and of the financial and real position of mining companies generally, have induced Messrs. WATSON BROTHERS to make their Circular now published in the *Mining Journal* more extensively known, and to state—

That they issue daily to clients and others who apply for it a Price List (as supplied to most of the London and country papers), giving the closing prices of Mining Shares up to Four o'clock.

They also buy and sell shares for immediate cash or for the usual fortnightly settlement in all Mines dealt in on the Mining and Stock Exchanges, at the close market prices of the day, free of all charges for commission. They deal also, on the same terms, in the Public Funds, Railways, Telegraphs, and all other Securities dealt in upon the Stock Exchange.

Having agents in all the mining districts, they are constantly getting mines inspected for their own guidance, and will also obtain special reports of any particular mine for their clients, for the inspecting agent's fee of £2 2s.

PARYS MOUNTAIN.—Although, as the accounts show, the balance of assets over liabilities is considerable, there is a cash expenditure to be met of 3000/ per month until the ore is reached in the 90 cross-cut; and the returns of the mine from precipitate and ochre, about 20000/ to 30000/ a year, comes in, the first quarterly and the latter annually. The directors, therefore, looking upon the mine as a speculation of no ordinary character, state in their report that they can only account for the low price of the shares on two grounds—first, the delay in getting under the ore in the great open-cast—Secondly, the fear of many persons, who would otherwise join the company, that the capital will be exhausted before that point is reached. They, therefore, recommend a reconstruction of the company, or rather that a new company should be formed in 50,000 shares of 1/ each, of which 30,000 fully paid-up are to be given to the present holders for their interest in the property. This, share per share, will absorb 22,500, leaving 7500 also to be given as a bonus to present holders who take the like number of capital shares. Thus any old shareholder applying for 100 shares would get 100 bonus shares also, in addition to his *pro rata* proportion of vendors' shares. Supposing these to be taken up, the capital in hand would be 75000/ and 12,500 shares still held in reserve. The company has sold upwards of 60,000/ of ores, and has good reserves of copper should the price advance. The cross-cut at the 90 is now within 15 fms. of its object, and the agent is most sanguine as to its ultimate success. At the Mona Mine, which has one-half of the great open-cast, a similar cross-cut took several years to drive, and it is now in a productive lode 30 ft. wide. If this and the Parys could be amalgamated, of which there is some chance, it would make one of the finest speculations of the day, and several influential people would join. It will be seen by the accounts that without any returns of copper the loss is not more than 1000/ per month; therefore, the 75000/ which it is proposed to raise is far in excess of what is really re-

before us. The lead in the rise in the 70 west looks better to day, and the tributors bargains have also improved. The frost has gone, so we shall get on with the dressing.

GREAT HOLWAY.—Feb. 6: Garden Shaft: The shaft is being prepared for the portable engine, which is soon to be ready. If there is any change to notice in the driving at the 60 east what was shafted at the meeting, it is on the right side—the lead is splendid. We hope to commence surface work on Monday as far as Roskell's erections are concerned.

GREAT RETALLACK.—J. Harris, Feb. 1: I have suspended the cross-cutting of the lode from boundary shaft, and the men have taken the ground at 13s. 4d. in 17. The men to pay all the cost. The lode contains good patches of blende, and I think that by a little exploration we shall meet with a better lode.

GREEN HURTH.—W. Vipond, Jan. 31: We have a good deal less ore in the bottom of the pump at present than we had last week, but I see no cause for alarm, indeed I am surprised we have so much as there is, considering the position we are in; we have about the full width of the pump of the vein, but more brangled with vein rider, the ore not in a solid body as it was. We have apparently just got through the top part of the limestone and black bed on the west cheek, with plate making its appearance on the east side, though I hardly think we have got all the vein into the pump yet, as the beds are still dipping rapidly to the east, and they ought to go off nearly level when we get the east cheek. What surprises me that we have not even less ore just now is that the black bed and top part of the upper limestone, with the exception of a few fathoms in length, were invariably barren. The bottom of the pump is strongly brangled ore and vein rider, mixed with soft, red, silty lamp. We should now be about 5 ft. from the top of the limestone on the east cheek—that is, where the real ore-bearing part of the limestone may be expected to commence. We generally had a good deal of the red silty lamp when the vein was rich above, and I look upon this as a certain indication of what we shall find below. The pump is now down 64 ft., and I estimate the ore in the bottom at present at about half the value it was last week. There is no change in either of the other workings.

HARWOOD.—W. Tallentire, Jan. 31: Herdship: the south end by driving east on the new vein referred to last week we have cut the Dry Gill vein. It appears to be strong and powerful vein. What throw it has, or what size it is, has not yet been proved; we have driven on it to the east about 6 feet, but are not yet through the disturbance occasioned by so many veins being intersected so near one point—it is composed of soft rider, clay, &c. The vein in question has formerly been worked successfully on the east, and proved to be a vein of considerable value, and there is no reason why it should not prove equally as good here. I may say here that the haze which has now been proved to be so rich at the Green Hurth Mine overlies this limestone, and is entirely whole throughout this set, and will be found of great value as ore bearing silty.

HERODSFOT.—P. Tennant, Feb. 6: Since taking possession of the underground operations on Saturday last I have carefully gone through and examined the different places, and find the operations have been for some time confined to the 205 ft. level, with only 18 men employed, who are raising from 15 to 20 tons of lead per fathom. On Saturday I set the following bargains:—The 205 to drive south, by six men, at 4s. 4d., for four weeks; the lode is 2½ ft. wide, and worth from 12 to 15 cwt. of lead per fathom. No. 1 stop, in the back of the 205 ft. level, is 20 fathoms behind the end, and here the lode is 4 ft. wide, worth 15 cwt. of lead per fathom; stoping 15s. per fathom. No. 2 stop, adjoins No. 1, and is let at 35s. per fathom; lode large, worth 10 cwt. of lead per fathom, and producing more of the Fahler's ore than No. 1 stop. These are the bargains let on Saturday. We are now clearing the 190 north, and shall commence driving here in a few days. I would recommend driving the same level south through the slide. I find the lode is rather disordered, but still letting out water freely, and judging from the appearance of the ground and the character of the lode I am led to believe that our great point is to drive south out of the influence of the slide, and sink another 15 fathoms lift as soon as possible, so that we may open another deeper level under the ore ground gone down in the bottom of the 205. Plans of the underground work are being made as soon as possible. We commence drawing lead for the new company to-day.

HINGTON DOWN.—T. Richards, Feb. 6: Bailey's Shaft: In the 173 east the lode continues of large size, composed of capel, quartz, mudioc, and copper ore to the value of about 5s. per fathom, and is promising. In the 172 west there is no change. In the stop in the back of the 172 east the lode will produce 6 tons of ore, or 15s. per fathom. In the 160, west of Nicholson's winze, the lode is large, containing capel, quartz, and mudioc, with occasional stones of ore. The tributors' stop and pitch in the back of the 160, improving (at the highest part) reached about 1½ ft. of lead per fathom, and the lode is 10 ft. wide, and producing more of the Fahler's ore than No. 1 stop. These are the bargains let on Saturday. We are now clearing the 190 north, and shall commence driving here in a few days. I would recommend driving the same level south through the slide. I find the lode is rather disordered, but still letting out water freely, and judging from the appearance of the ground and the character of the lode I am led to believe that our great point is to drive south out of the influence of the slide, and sink another 15 fathoms lift as soon as possible, so that we may open another deeper level under the ore ground gone down in the bottom of the 205. Plans of the underground work are being made as soon as possible. We commence drawing lead for the new company to-day.

LADYWELL.—A. Waters, Feb. 6: The new south lode below the 16 is going down in a hard blue silty rock to the east of the lode. Webster's winze, below the 16, 45 fms. south of shaft, is down 8 fathoms; lode yielding good "celphur" like stones of solid lead ore—good tributors' ground. The 16, north 62 fms. south of shaft, continues to go forward in a sparry, grey lode, worth 1½ ton of lead ore per fathom.

LEAD ERA.—J. A. Ede: The lode in the north cross-cut is full of crystallised spar and carbonate of lime, while the walls are more defined, and the matrix generally more congeal for the early production of lead. On the strike of this lode, south of the mouth of the adit level, I picked up yesterday a stone interspersed with lead, and close to this barrows full of ore are reported to have been raised close up to surface. I have placed two men at work, and expect in the course of a few days to send on some satisfactory results. The adit level is driven at the rate of 5 yards weekly. The shaft 150 yards ahead is down to the level of the forebrest, and we shall then in another week have three ends opening this drift into the mountain, while I feel convinced that as soon as we strike the mountain limestone a rich course of lead ore will be found. No. 2 shaft is down 16 fms., and we have, after passing through all the measures desirable in the mill stone grit, and plentiful with those of Minera, reached the mountain rock—a compact metalliferous white limestone. So soon as Carrington lode is reached you may confidently rely on satisfactory results. In order to note the general feeling in the neighbourhood in respect to our future, I may add that our prospects are topics of general conversation. Some have visions of unbounded wealth, others dream of fabulous discoveries, and all pronounce us the coming Minera of the district. Yet, while I mount these prognostications, I hope shortly to announce substantial discoveries that will surpass even visions and dreams combined.

—J. A. Ede, Feb. 6: The lode in the adit is thickly studded with small crystals of spar. The walls have now an even glistening surface, while the general character of the lode is more favourable for the production of lead ore. No. 1 shaft will soon be deep enough to command a level, so as to meet the adit forebrest, No. 2 trial shaft is a white limestone, highly mineralised. When we cut the adjacent Carrington lode in this way, I am strongly of the opinion we shall find it productive. This measure is identical with that of Minera. Yesterday, while on the strike of the north lode, south of adit, I picked up a stone interspersed with lead which must have come from the lode. Subsequently I have been informed that two barrowsful of lead ore was found close by, which is also on the strike of the lode. The ground was many times applied for, but was never granted but to the present company. I have two men employed near this point at present, and I trust in a few days to have more to say on the subject.

MELANEAR COPPER.—John Gilbert, Feb. 5: The lode in the 30, west of Gundry's shaft, was driven 5 fathoms last month; the lode is 3 ft. wide, and worth 3 tons of copper ore per fathom. The 40, west of Gundry's shaft, was driven 2 fms. 5 ft. 6 in.; the lode is 2 ft. wide, and producing occasional stones of copper ore, but not sufficient to value. The 50 fathom level, west of Gundry's shaft, was driven 3 fms. 3 ft. 8 in.; the lode is 2½ ft. wide, and worth ½ ton of ore per fathom. The 60 fms. level, west of Gundry's shaft, was driven 2 fms. 0 ft. 1 in.; the lode is 3 ft. wide, and worth 2 tons of ore per fathom. Our progress in this level has been rather slow, but we have lately hove the winze a little behind the end, which has very much improved the ventilation, and will enable us to drive again at a good rate. The lode in the 70, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom, and some saving work for blende. This lode is very strong and promising. The rise in the back of this level, west of Gundry's shaft, was put up 3 fathoms; this rise is on the north part of the lode, and the winze was sunk on the south part. At the point of communication there is a horse of kill about 6 ft. wide. This is a good level, and standing in the winze, the lode is 4 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 80, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 90, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 100, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 110, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 120, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 130, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 140, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 150, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 160, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 170, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 180, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 190, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 200, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 210, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 220, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 230, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 240, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 250, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 260, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 270, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 280, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 290, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 300, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 310, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 320, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 330, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 340, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 350, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 360, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 370, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 380, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 390, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 400, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 410, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 420, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 430, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 440, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 450, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 460, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 470, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 480, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 490, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 500, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 510, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 520, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 530, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 540, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 550, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 560, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 570, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 580, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 590, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 600, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 610, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 620, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 630, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 640, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 650, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 660, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 670, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 680, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 690, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 700, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 710, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 720, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 730, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 740, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 750, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 760, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 770, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 780, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 790, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 800, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 810, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 820, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 830, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 840, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 850, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 860, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 870, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 880, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 890, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 900, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 910, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 920, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 930, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 940, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 950, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 960, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 970, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 980, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 990, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1000, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1010, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1020, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1030, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1040, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1050, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1060, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1070, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1080, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1090, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1100, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1110, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1120, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1130, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1140, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1150, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1160, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1170, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1180, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1190, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1200, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1210, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1220, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1230, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1240, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1250, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1260, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1270, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1280, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1290, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1300, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1310, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1320, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1330, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1340, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1350, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1360, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1370, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1380, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1390, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1400, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1410, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1420, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1430, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1440, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1450, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1460, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1470, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1480, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1490, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1500, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1510, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1520, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1530, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1540, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1550, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1560, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1570, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1580, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1590, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1600, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1610, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1620, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1630, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1640, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1650, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1660, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1670, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1680, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1690, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1700, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1710, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1720, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1730, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1740, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 1750, west of Gundry's shaft, was driven 4 fms. 4 ft. 3 in.; the lode is 3 ft. wide, and worth 2½ tons of

shillings, have risen cent. per cent., and will go higher. Herodfoot will probably have a great rise, and there are several good bargains to be picked up in mines.—*St. Michael's alley, Cornhill.* W. H. H. WATSON.

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The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, FEB. 7, 1890.			
IRON.	£ s. d.	£ s. d.	£ s. d.
Pig, cwt., f.o.b., Clyde..	2 2 6		
" Scotch, do. do. do.	2 2 6		
" Welsh, f.o.b., Wales..	17 6 0		
" in London..	5 6 0		
" Stafford..	6 5 0		
" in Tyne or Tees..	5 5 0		
" Swedish, London..	15 0 0		
" Rals, Welsh, at works..	4 15 0		
" Sheets, Staff., in London	15 0 0		
" Plates, ship., in London	6 12 6		
" Hoops, Staff., in London	6 15 0		
" Nail rods, Staff., in London	5 15 0		
STEEL.			
English, spring..	13 1 0		
" cast..	30 0 0		
Swedish, keg..	1 0 0		
" flag, bag..	15 0 0		
LEAD.			
English, pig, common..	13 10 0		
" " L.B..	13 15 0		
" " W.B..	14 10 0		
" sheet and bar..	14 10 0		
" pipe..	15 0 0		
" red..	16 0 0		
" white..	24 0 0		
" patent shot..	17 0 0		
Spanish..	13 0 0		
NICKEL.			
Metal, per cwt..	18 0 0		
Ore, 10 per cent., per ton..	20 0 0		
QUICKSILVER.			
Flasks of 75 lbs., ware..	6 5 0		
SPELTZ.			
English, 16 0 0			
Sheet fine..	20 10 0		

REMARKS.—Our markets continue fairly steady, and prices are nearly stationary. With the exception of iron, there is a good chance of most other metals soon becoming in better demand shortly, for as consumers for a long time past have been buying sparingly, they must now be running very low of stock, and considering the exceedingly low prices now prevailing, they can not do better than replenish them as fast as possible, especially as the cheapness of money will afford increased facilities of finance, and inspire greater confidence in buyers generally, as an improved demand would undoubtedly be followed by enhanced rates, so purchasers should be on the *qui vive* and watch the course and every movement of the markets with the strictest scrutiny, and to be well provided in good time against any rise that may occur. Business with the East has lately been considerably interfered with on account of the low rate of the Exchange and the dearth of money in India, but merchants are now beginning to be hopeful of some permanent improvement shortly taking place, and the recent light shipments would certainly seem to admit of some augmentation, and had it not been for the heavy failures reported in the Bombay Bazaars, there is no doubt but that a much better business would have been doing ere this. Nevertheless, now that the aspect of affairs is looking brighter, and it is thought that the minimum rate of Exchange has already been touched, it is greatly to be hoped that these sanguine expectations will be fully realised, and that orders in future will be of greater magnitude than they have proved hitherto. The rate of discount here being low, and large sums of money remaining unemployed, and the general tendency of the money market towards greater ease, combine to demonstrate the advantages to be gained by operating at this opportune moment.

There is little doubt but that the greatest strain has already been felt, and it is now merely a question of time as to how long it will require to restore confidence. And it is hard to believe that this much-longed-for feeling is very remote, for nearly everything is favourable for a revival of trade. It is shown that the stocks of metals are large, and which evidently check any great advance in prices, although a slight recovery may be anticipated as soon as any additional demand sets in, as the stocks can be now held over at comparatively little cost, and the prices are too uninviting to induce holders to part with any great portion of it. One thing is certain, that after the purging we have received, the atmosphere must be considerably purified, and there is no fear of any serious convulsions. Although our markets may be still in a feeble condition, yet they must be far healthier, and as the year advances they will gather strength. In about another month orders will be given out for spring shipment, and the works generally will doubtless be better employed, and it will be singular indeed if speculators are not tempted to operate at the unprecedently low prices now ruling. Average prices in former times were considered tolerably safe figures to reckon upon making profits, therefore the present unheard-of prices appear ridiculously cheap.

COPPER.—The stocks of Chili bars in Liverpool and Swansea at the end of January were 27,060 tons, against 28,180 tons on Jan. 15, showing a reduction of 1120 tons. But the total stocks, including Australian and the quantity afloat and chartered, amounted on the 1st inst. to 52,978 tons, against 52,260 tons on Jan. 1 last, or an increase of 718 tons. The charters for the last half of January were telegraphed as 2300 tons. This announcement was not calculated to encourage buyers to come forward freely, and sales could only be effected by accepting a reduction in price. The market at no time has exhibited any degree of activity, and notwithstanding the cheap rates at which copper can now be secured, buyers are rather conspicuous for their absence; but although this naturally gives a dull aspect to the market, yet holders are by no means dismayed, and rather look forward to better times. A greatly diminished production in Chili and Australia is by many fully expected and asserted to in the most positive manner. The value of copper is now so much reduced that it has reached a point at which it is barely, if at all, worth the while of many companies continuing to work their mines; and it must be pretty evident to producers generally that the only way to give immediate relief to the market will be to considerably curtail supplies. The production has hitherto been too large, and out of proportion to the consumption; and the only remedy under these circumstances is to temporarily lessen the output. It would not take long before some impression would be made upon the stock, and as soon as ever it is observed that a real falling off is actually taking place the price will once more rapidly advance. Such large companies as the Rio Tinto and Tharsis might come to some mutual understanding, whereby a sensible reduction should be made; and there is little fear but that in coming to such an arrangement they would find their interests materially improved, for it would be better to do a comparatively small business at a fair profit rather than to dispose of large quantities of their products without deriving corresponding advantages.

There is no prospect of any new workings being opened up under the present unfavourable circumstances, and consequently old companies need not be apprehensive of increased competition, for not only will prices have to considerably improve, but also trade generally before people will be willing or enabled to enter upon any new enterprise. The Wallaroo Company has been one of the first to set a good example in this respect in closing their Wallaroo Mine, and it has been stated that their annual production will be lessened by several thousand tons. If all the other mining companies in Australia and Chili, and at the Cape, would adopt the same course the price of copper might be easily advanced to about 80s. per ton without in the slightest degree interfering with the consumption. If the question of price was stopping business, we should not so much advocate a curtailment in the production, but rather stimulate efforts being used to reduce the cost of production; but, unfortunately, the unprecedently low price does not act as a stimulus, and, therefore, another remedy must be found, and the only one which appears open to sellers is to cut down supplies all round for a time. It is useless, in fact, we might almost say it is madness, on the part of producers to continue their former suicidal policy, and increase the burden of an already over-loaded market; but if they will persist in raising and sending to market more copper than is wanted the inevitable result must be further depreciation, and they will have to bear the just penalty of their folly; and instead of realising 80s. per ton, which they might very well do in a short space of time if they would only be reasonable in sending forward moderate supplies, they will more likely have to put up with 50s., and then, perhaps, dearly bought experience may teach them wisdom. Now, which price would sellers prefer to sell at, 80s. or 50s.? If the former price, then they must display prudence by moderating supplies; but if they are reckless and determine to import as much as possible at any cost, it will not be long before the market declines to the latter figure, and about half the mines will be ruined, and the mines will have to be shut up or abandoned. One company by itself acting wisely cannot control the market, and there should be united action on the part of all the leading producers, and then some good result might be obtained. The Burra Company in its public sales is generally influenced by the Wallaroo Company, as they have never announced an auction before that company, and there is no doubt by proper representing and management they would be ready to work harmoniously together, and limit their imports for the next twelve months, and there is no reason why the Cape Company should not join in them, for their interests all lie in the same direction.

Then, again, it surely would not prove such a difficult task for the principal Chili miners to come to some common understanding in regard to limiting their supplies. But the increased supply is more from Spain than elsewhere. This comparatively new source of supply has greatly depreciated the value of copper, and while these companies continue to pour in their pyrites and precipitates in such overwhelming quantities the market must sink to a lower basis, and in a short time they will find that they have wasted their labour and means for no return whatever. The exercise of a little common sense at a depressed period like

the present would give a very different tone to the market, and proprietors and shareholders of mines, instead of moaning over their losses and bad returns, might be receiving a fair and moderate profit or dividend. The matter should be taken up at once by the strongest and most influential parties; and, if it were published that it had been agreed upon that the entire production of this year should be reduced by only one third that of last year, an electrifying effect would be instantaneously produced, for consumers are known to be exceedingly low of stock, and shippers have been buying very sparingly lately. Sellers, in fact, have the remedy in their own hands, and they are foolish if they do not profit by it. A temporary relief is needed for the market, and that relief must be, sooner or later, given to it, and, since the low price does not help to reduce stocks, it is evident we must seek it in diminished supplies. Twelve months would not be such a very long time for that purpose, and by that time there will no doubt be a considerable increase of business; and, if our suggestion is acted upon, the market will then be in a very different state to what it is at present, and we have no hesitation in saying that there would be cause for hearty congratulation, whereas now everybody is complaining and grieving over their losses, but let a light supply be substituted for a heavy supply and a metamorphosis of the most brilliant description would be immediately displayed. The old standard rule of supply and demand regulating prices cannot be overcome, and as the demand is limited the supply must also be limited, or down will come the price.

IRON.—The iron market continues in a state of lethargy, and as far as can be seen at the present time it will require many months yet, if not years, to revive it to anything like an approach to activity. The foreign competition is so very great, and at present our ironmasters are totally unable to quote as low as other countries, leave alone anything below them, and taking this into consideration by itself, it cannot well be expected that any improvement can occur until such a time as English makers regulate their quotations on a par with their foreign competitors. A great curtailment in all expenses must be made, and to effect this everyone must put forth all their efforts to bring about the much wished-for improvement, for it becomes a serious question now whether England will ever enjoy a prosperous iron trade again, for buyers have mostly overcome their prejudice against foreign iron, and as long as it can be purchased at anything below what sellers here are selling at there is not the remotest shadow of a chance of our masters having again their books plentifully filled with orders. Both the home and shipping trade are alike as regards their great dulness, and it would be difficult to say which of the two is suffering from the greater depression, and for confirmation of this fact reference need only be made to the Board of Trade Returns, and it will then be seen what comparatively large quantities are shipped to this country, especially from Belgium, and also what a small percentage of English is exported. This is sufficient manifestation, without requiring any further proof whatever, that the English consumers can purchase foreign iron, pay the freight from other countries, and all charges attending importation combined, at a less cost than what they can buy from manufacturers in this country. But this state of things should not be, for surely if other countries can make iron cheaply there is no reason why England should form an exception. If it is the dearth of labour that enhances so much the cost of manufacture it only shows the absolute necessity of an immediate reduction in the wages being paid to the workmen, for until they work upon equivalent terms to those accepted by workmen in other countries, it stands to reason that our ironmasters cannot successfully compete with Belgium, Germany, or any other foreign make. It is no use delaying the change, for that only prolongs the stagnation of trade, and recoils upon the men themselves.

They know perfectly well what a little work there is to be obtained just now, and which is greatly owing to the cheapness of foreign iron, and if they would have increased work the only way in which they can secure it is by bringing themselves to a level with others. Stocks continue on the increase rather than otherwise, for in stores at Glasgow alone on the 31st ult. there were 7092 tons over and above what there were last Christmas, and which brings the total up to 2,641,9 tons, with warrants in circulation for 180,495 tons. The stock in Messrs. Connell and Co.'s yards at Middlesbrough is 73,500 tons, being an increase since Christmas of 6860 tons, with warrants in circulation for 71,500 tons. The various reports for the several producing parts of the country all tend to confirm the monotonous state of the trade; and although one or two districts may be enjoying a greater share of orders than what others are, still when it is taken into consideration what the output is from the most active mills, it is but a mere fraction of what they are capable of turning out. For instance, from Barnsley it is reported that extreme quietness continues observable at all the works, and the demand for all descriptions is so very small that it would be difficult to say whether there are more orders on hand for pig or manufactured iron. The pig iron market at Barrow-in-Furness is stated to be showing great dulness, and sales effected are but of small dimensions; and although there is no material alteration said to have taken place in price, still a downward tendency is noticed. The reports from Darlington are also unsatisfactory, for it is said there is but very little enquiry for any description of iron. Stocks continue on the increase rather than otherwise, for in stores at Glasgow alone on the 31st ult. there were 7092 tons over and above what there were last Christmas, and which brings the total up to 2,641,9 tons, with warrants in circulation for 180,495 tons. The stock in Messrs. Connell and Co.'s yards at Middlesbrough is 73,500 tons, being an increase since Christmas of 6860 tons, with warrants in circulation for 71,500 tons. The various reports for the several producing parts of the country all tend to confirm the monotonous state of the trade; and although one or two districts may be enjoying a greater share of orders than what others are, still when it is taken into consideration what the output is from the most active mills, it is but a mere fraction of what they are capable of turning out. For instance, from Barnsley it is reported that extreme quietness continues observable at all the works, and the demand for all descriptions is so very small that it would be difficult to say whether there are more orders on hand for pig or manufactured iron. The pig iron market at Barrow-in-Furness is stated to be showing great dulness, and sales effected are but of small dimensions; and although there is no material alteration said to have taken place in price, still a downward tendency is noticed. The reports from Darlington are also unsatisfactory, for it is said there is but very little enquiry for any description of iron.

SHIPMENTS.	
For the week ending Feb. 2, 1879	Tons 6,550
For the week ending Feb. 1, 1879	4,999
Decrease	1,551
Total increase for 1879	3,418
Imports of Middlesbrough pig-iron into Grangemouth:—	
For the week ending Feb. 2, 1879	Tons 2,970
For the week ending Feb. 1, 1879	2,450
Decrease	520
Total decrease for 1879	8,723

In blast Feb. 2, 1879

In blast Feb. 1, 1879

TIN.—The market this week has not been quite so firm as before.

There has been decidedly less doing, and the tendency has been towards lower rates. This is not surprising, considering the increase which has taken place in stocks, which is estimated at 594 tons, the total quantities of all foreign kinds being on the 31st ult. 17,437 tons, against 16,843 tons on the 31st of the previous month, and 16,938 tons on the 31st January, 1878, and 15,662 tons 31st January, 1877. The supply being in excess of each of these periods it naturally influences the price, and the present value of Australian and Straits is now only 59s. 10s. against 64s. on the 31st January, 1878, and 73s. 10s. on the 31st January, 1877, and as the invariable tendency of values is downwards when supplies are in excess there can be little doubt but that prices will continue low until statistics again improve. The several speculative proposals having expired, and "the bears" having consequently covered, and the dulness of trade continuing, there remains no feature upon which to base an upward movement, especially as speculators at the present time are not disposed to operate, so it is feared that a dull market may prevail for some time to come. The deliveries for last month in London and Holland are reported at 1401 tons, and also 140 tons overland to America, against 1608 tons on the 31st January, 1878, and 1269 tons 31st January, 1877. The shipments from Straits, however, have increased, the statistics showing them to be 950 tons, against 825 tons on the 31st of the same month of last year, and 675 tons at the corresponding period of 1877; but those from Australia have diminished, being only 243 tons, compared with 617 tons at the end of Jan., 1878, and 625 tons on the last day of Jan., 1877.

The shipments from Jan. 31, 1878, to the same date, 1879, were 3940 tons, against 351 tons for the previous 12 months; and those from Australia to London 8515 tons, against 9368 tons; the deliveries of foreign tin in London for the same time were 12,205 tons, against 10,926 tons. It will thus be observed that there really appears some limit to Australian supplies; and, as the depreciation in value of this metal has chiefly arisen from this new source of supply, it is a matter of the utmost importance to notice the falling off that has occurred during the last 12 months in comparison with the previous 12 months, being a diminution which that period of about 800 tons; and in whatever way it arises it is of little consequence so far as concerns our market at the present time. The fact of there being a reduction of some magnitude is a sufficient point for us to deal with, and upon which to base a calculation; and, had it not been for the increase which has taken place in the shipments of Straits, and which has fully made up the falling off in Australia, there would have been ere this a much stronger and higher market. The attention of the moment, therefore, is drawn off from the supply of Australian to that of Straits, and the price in the immediate future seems likely to be governed more by the deliveries from this original source of supply than those of late date. Now, as we have some reason to expect that the shipments of Straits will not be maintained to the same extent as formerly, and assuming that Australia does not exceed the estimated quantities inserted in our previous reports, and that, although figures are exercising a depressing influence at the present time, yet the prospect is not altogether so bad as to necessitate any hasty or reckless realisation.

LEAD continues dull of sale, and without any material alteration as regards the demand or price, though the latter may, perhaps, be rather easier for small, and few orders are reported to have been executed as low as 13s. 10s. for common English pig, and at about 5s. per ton more for the best brands. Sheet-lead is procurable at 14s. 10s. per ton, but in spite of this very low price few transactions are entered into.

SPELTZ.—There is but a restricted amount of business effected in this metal at last week's prices.

STEEL.—Undisturbed quietude continues to reign over this market, and sellers make no change in their quotations.

QUICKSILVER continues firm at 6s. 5s., and there is a fair trade doing entirely for the legitimate demands and without a tinge of speculation.

At Redruth Ticketing, on Thursday, 1111 tons of copper ore were sold, realising 3504s. 8s. 6d. The particulars of the sale were—Average standard, 83s. 6s.; average produce, 7s.; average price per ton, 3s. 3s.; quantity of fine copper, 78 tons 15 cwt. The following are the particulars:—

Date.	Tons.	Standard.	Produce.	Per ton.	Per unit.	Ore copper.
Jan. 2 1219	83	14	0	7 1/2	£3 3 6	811 1/2 d. 244 17 6
" 23 2182	86	9	0	6 1/2	2 19 0	8 1 1/2 d. 41 16 6
Feb. 6 1111	83	6	0	7 1/2	3 3 0	8 9 d. 44 10 6

Compared with the last sale, there has been no alteration in the standard.

Messrs. FILLIS AND ABELL—GOLD.—The demand for export has ceased this week, and some amounts are beginning to flow in from the Cape, the transactions with that establishment since our last having been purchases of 18,000s., and withdrawals of 142,000s., chiefly sovereigns, for Lisbon and the Cape. The arrivals

comprise 48,690s. from the West Indies; 30,240s. from the Brazil; 160,530s. from India; 25,000s. from Australia; total, 264,460s. The Durban takes 55,000s. to the Cape and St. Helena, and the Para, 19,500s. to the West Indies. —SILVER.—The market has remained quiet since our last, and the quotation of 50d. is unaltered; at this rate all amounts that have arrived have been taken for the Continent, there having been no fresh purchases for India. No further sales have been made on German account. We have received during the week 14,000s. from the West Indies; 26,440s. from the Pacific; 23,820s. from New York; total, 64,260s. The P. and O. steamer takes 25,000s. to Bombay.

THE MINING SHARE MARKET has been rather more active this week, and a good many enquiries made for shares in various mines, such as Parys Mountain, Wheal Crebor, Morfa Du, Don Pedro, East Van, Wheal Pevor, Aberllyn, Roman Gravel, D'Eresby Mountain, Herodfoot, Clementina, Betts-y-Coed, and a few others, but generally speaking prices are nominal, and purchases and sales matters of negotiation.

TIN MINES continue dull, with one or two exceptions. At Wheal Basset meeting a call of 6s. per share was made; the accounts showed a loss of 2290s. on the quarter, and a debit balance of 7402s. West Basset, 2 to 2 1/2; at the meeting the accounts showed a profit of 399s. on the quarter's working, and a debit balance of 18,133s. No call was made, and the tin in stock is to be sold. The quarter's tin (188 tons) realised 6094s. The report of the mine is satisfactory. Wheal Pevor have been in demand, and leave off at an advance to 7 1/2. South Frances, 6 1/2 to 7; the mine is looking well, and sold 60 tons of tin for the month of January. Carn Brea, 2 1/2 to 3; Cook's Kitchen, 15s. to 20s.; Dolcoath, 23 to 24; East Pool, 8 1/2 to 9; Penstruthal, 1s. 6d. to 2s. 6d.; South Condurrow, 10 1/2 to 11; Tincroft, 7 1/2 to 8 1/2; West Frances, 2 to 2 1/2; Wheal Agar, 3 1/2 to 4 1/2; Wheal Grenville, 1 1/2 to 2.

COPPER MINES.—Rather more business is doing in copper mines, but without much variation in prices. The standard for ore remains stationary. Parys Mountain in good demand at 5s. to 7s. 6d.; The accounts for the general meeting shows assets over liabilities, including 1000s. not yet due from Morfa Du, of 2059s. 6s. 3d. after charging up costs payable in February. The directors in their report state that the precipitate and ochre pits yield from 2000s. to 3000s. a year, payable quarterly and otherwise; but that the cost of driving the 90 south, &c., entail an outlay of about 300s. per month, which has to be met in cash, and before this becomes exhausted they would recommend a re-construction of the company. Another reason for this, we understand, is that a very important amalgamation is under discussion. They propose, therefore, a company in 50,000 shares, of 1s. each, of which 30,000s., in fully paid-up shares are to be given to present holders. Of these 25,500 would be allotted *pro rata*, and 7500 given as a bonus to any old holders subscribing for 7500 capital shares; thus raising 7500s., and leaving 12,500 shares to be held in reserve. The company, it is said, have sold ore amounting to upwards of the value of 60,000s., and could at present make large returns if the price of copper would rise. In regard to the 90 cross-cut south, the agent states that it is now within 15 fms. of its object, and he is most sanguine as to its ultimate success. Morfa Du, 1/2 to 1; the accounts show assets over liabilities of 1014s. 14s.; about 600s. worth of bluestone has been sold, and contracts entered into for all the returns of the next six months, at a price that will leave a good profit to the company; and the directors congratulate the shareholders on the early success of the mine. Mellanear, 4 to 4 1/2; the sale of ore on Thursday, 401 tons, realised 1063s. West Tolgus, 32 to 34; the sale here, 302 tons, brought 1490s. West Seton, 7 to 8; 121 tons realised 343s. Wheal Crebor, 10s. to 12s. 6d.; the sampling for two months is 130 tons, and the 108 end east has improved to 5 tons of good ore per fathom. Marke Valley, 5s. to 7s. 6d.

LEAD MINES have been moderately dealt in, but prices generally are nominal. Van, 15 1/2 to 16 1/2; the sale on Thursday, 400 tons lead and 150 tons of blende, realised 3437s. 10s. The mine is looking as well as usual. Great Lixey, 15 to 16. Roman Gravel, 6 1/2 to 6 3/4. Tankerville, 1 1/2 to 2 1/2. Betts-y-Coed, 1 1/2 to 1 3/4. Clementina, 1 to 1 1/4. East Van, 1 1/2 to 2. Glenroy, 7s. 6d. to 12s. 6d. Leadhills, 1 1/2 to 2. Ladywell, 3/4 to 1. Mineral Corporation, 10 to 11. Pateley Bridge, 20s. to 25s. Herodfoot, 3 to 4. Pandora, 7s. 6d. to 12s. 6d. Rookhope, 1/2 to 3/4. West Chiverton, 2 1/2 to 3. D'Eresby Mountain, 30 to 40. Devon Great Consols, 6 to 8. Aberllyn, 10 to 12; in No. 2 adit the agent reports there is 18 in of nearly solid blende; in No. 1 good stones of lead and blende. West Pateley, 1 1/2 to 2 1/4. Grogwinon, 1 1/2 to 2 1/4. Caron, 1 1/2 to 2 1/4. Red Rock, 1 1/2 to 2 1/4. Frongoch, 1 1/2 to 2 1/4. Mawston, 1 1/2 to 2. Hartington, 1 1/2 to 2. Wye Valley, 1 1/2 to 2. West Wye Valley, 1 1/2 to 2 1/4. Cakemore, 3/4 to 3 1/4.

FOREIGN MINES.—Cape Copper, 29 1/2 to 30 1/2; Chontales, 7s. 6d. to 12s. 6d.; Colorado, 1 1/2 to 1 3/4. Don Pedro have been largely dealt in at 18s. to 21s. Eberhardt and Aurora, 3 1/2 to 3 3/4; Flagstaff, 1/2 to 3/4; Frontino and Bolivia, 2 1/2 to 2 3/4; Javali, 4s. to 6s.; New Zealand Kapanga, 1/2 to 3/4; New Quebrada, 1 1/2 to 1 3/4; Port Phillip, 10s. to 12s. 6d. Richmond declined to 8 1/2, but leave off to 9 1/4 ex div.; St. John del Rey, 270 to 280; Santa Barbara, 37s. 6d. to 42s. 6d. Placerilla, 2 1/2 to 2 3/4; the ore has been cut good in the 450 ft. level, and crushing will be commenced on April 1.

The Market for Mine Shares on the Stock Exchange has somewhat improved during the week; that is to say, there has been a larger number of transactions, although in some cases it has been necessary to accept lower prices in order to do business. The encouraging appearance of political matters at Paris has not been without effect here, and it is generally felt that both English and French capitalists are beginning to comprehend that it is much safer to invest in European mines, the value of which can be ascertained in three or four days at most, whilst errors of management can be as quickly corrected, than to hand over the funds to the American schemers and their confederates who infest the London, Parisian, and other European markets—men who are not only more despised by respectable Americans than by those whom they deceive on this side of the Atlantic, but who, by bringing discredit upon American mining generally, do much to injury to the United States by driving away capital which would otherwise be employed in developing here enormous mineral resources. The attempt to float the Old Telegraph (Utah) Mine at Paris is understood to have failed, although the influence brought to bear in order to carry it through was considerable. The time for promoters to realise enormous premiums is past, but capitalists are perhaps more ready than for the last two or three years to embark in enterprises of a really legitimate character.

An extensive deposit of lead ore beneath a property near Freihung, in Bavaria, is about to be worked by the Bavarian Lead Mining Company, which has been formed with a capital of 70,000s., in shares of 20s. each, to purchase it for 49,500s., payable 14,500s. in fully-paid preference shares (entitled to 15 per cent. out of the available profits in each year before the ordinary shares receive anything), and 35,000s. in ordinary shares. Any profits beyond 30 per cent. are to be equally divided between both classes of shares. The purchase price thus absorbs the whole 1750 ordinary shares, and 75 out of the 1750 preference shares, leaving 1025 preference for issue to the public. From the prospectus, which will be found in another column, it will be seen that the property is held direct from the Bavarian Government, that the ore does not occur in a lode, but "disseminated regularly through a large and continuous stratified band of proved extent, which almost entirely eliminates the risk usually attendant upon lead mining;" that the estimate of profit is based on the present exceptionally low price of lead; and that the 14,500s. of the purchase money paid in preference shares represents "the actual liabilities incurred by the vendors, including a sum of about 2500s. spent by them on the mines for which the company take over plant and work done to an equivalent amount." It is proposed in the first instance to develop only the southern portion of the property, and to erect works capable of treating about 540 tons of sandstone daily. The cost of development and erection of works is estimated at 17,500s.; the cost of production at 3s. per ton, and the profit, calculating on present rates at 2s. per ton, or 16,200s. on an annual production of 8100 tons of ore.

The newly discovered Knysna gold district continues, according to the latest advices from the Cape, to attract attention, and several parties have gone to the place to test the value of the working, but it appears that a large amount of capital will be required to make the discovery profitable, on account of the natural difficulties of the ground, which is intersected by a deep and rapid torrent, and covered with precipitous rocks, and in parts by dense vegetation. A company to work the find is in process of formation at Mossel Bay, and an acting gold commissioner has been appointed to consider applications for allotment claims, which are said to have been very numerous.

The Old Telegraph (Utah) Mine, and the scheme for selling it to the French, was noticed in last week's Journal, and it was remarked that the statement as to its value required either verification or

explanation; it seems that the hint was not uncalled for. It is said that the Crédit Mobilier of Paris occupy the position of promoters, but it appears from an article referring to the scheme published in another column of to-day's Journal, that upon the real value of the property coming to the knowledge of some of the gentlemen who had lent their names as directors of the "Mines d'Argent et Fonderies de Bingham," (the directors included a G.O., two C's, and three Chevaliers of the Legion of Honour—the Marquis de Banneville, G.O., Counts de Maugny, decorated, and de Vassel-Montvill, undecorated; Messrs. Outrey, Welcher, Buchot, and Dom martin, decorated; and Messrs. Bagel, banker, and Lemolne, Ingenieur, Administrateur du Crédit Mobilier, undecorated) have withdrawn their support, and the Crédit Mobilier would probably do well to preserve its high reputation by at once returning the deposits to the applicants for shares, and by confining itself to its legitimate purpose of aiding French home industry. It would have been thought that the unhappy experience of English capitalists in connection with American mines, which, with the exception of the Richmond and Sierra Buttes, have proved lamentable failures, if nothing worse, would have reached the knowledge of the French, and prevented any more European capital being sent to the Pacific States; but the facilities which the *réclame*, so common in France, offers for deceiving the unwary, still renders it possible, except in case of what may be termed accidental exposure, for projects to be floated in Paris before their intrinsic worth has been accurately ascertained. The writer of the article already mentioned discusses the question so fully that those who do not profit by his suggestions will have no right to complain hereafter should disappointment overtake them.

Sentein, 2 to 2½; although this mine only commenced working on Oct. 15 they have already raised upwards of 1200 tons of silver-lead ore of high class at a cost for mining and material considerably less than 1l. per ton, and it is believed that they will be in a position to pay before the end of June upwards of 30 per cent. on the total capital of the company. The manager (Feb. 1) writes that they have broken 130 tons during the week. The mine looks well. They have commenced to re-lay with stone, and repair the road to the mine where there is no snow, and if the fine weather continues they hope to make good progress, and if possible have it ready by the time the carts go up. The whole of the heavy parts of the crusher, including the rail-wheel, will be fixed by the end of the coming week. The two driving-wheels have arrived, and are in their place. The dressing-floors are being actively pushed on with, and the smiths busily engaged making the iron launders for the crusher-wheel, &c. The cuttings continue to make good progress with the ore, and the mine is admirably conducted. They have at present a Cornishman, Capt. Edwards, as captain of the mine; three Cornishmen as headmen in the mining and dressing department. The labourers are all French or Spanish, and excellent men, quiet and obedient, and working 10 hours per day, all piece work. The mine is situated in the department of Ariège, and is about 20 miles south-west of the St. Giron's Station, a branch of the Toulouse and Bordeaux Rail. The miners get on an average 3frs. per day—2s. 6d., and are working with 30 ft. of snow on the mountains and at the mouth of the mine—a thing never before attempted in France. It was a popular superstition that the mine could not be worked in winter, but this the manager has dispelled by breaking 500 tons in the month of December, in spite of the worst weather known for many years.

Don Pedro, 1 to 1½; "the intersection of the lode is considered by all gold mining authorities to be the precursor of great and lasting returns, and has also thrown light on mining science, as some doubts have existed as to whether jacotinga formations prove rich in depth." Santa Barbara, 1½ to 2½; the manager (Dec. 28) reports that the results derived from the operations up to date were equally as favourable as of the previous month, and a fair month's produce might consequently be expected for December. The native borers were, however, still somewhat irregular in their attendance, chiefly owing to the holidays.

Richmond, 9 to 9½ ex div.; the usual weekly telegram from the mines at Eureka, Nevada, states that the week's run was \$54,000, from 1083 tons of ore. During the week the refinery produced \$30,000. The manager writes (Jan. 16) that work had been somewhat retarded during the week by the frost, but the difficulty was soon removed. The 1000 ft. level had been drifted on the contact westerly 15 ft., and the ground still looks favourable for ore. During the week a few transactions have taken place in these shares at lower prices, but to-day they had fully recovered, and a fair amount of business was done.

Placerville, 2½ to 2¾; the lode has been cut in the 400 ft. level, and as the driving is continued north the ore is improving in quality and will pay well. This strike proves that the rich ore found in the old works above the 300 underlies north, and is thus more valuable, as the company possess the greatest extent of ground in that direction. It is expected that the winze sinking below the 300 ft. level, considerably in advance of the present end, will be communicated by the end of March, opening up extensive stoping ground, and allowing steady crushing to be carried on.

The Market for Hydraulic, or Gold Washing Shares, continues quiet, though there has been a slight enquiry for shares during the past week. The latest news from the Pacific Coast announces the satisfactory intelligence that both in California and Oregon heavy snow had fallen, giving assurance of ample water by-and-by.

The shares in Lead Mines have followed the general market, and dealings have been more numerous. Van, 16½ to 17½; the usual monthly report appears in another column. The mine is looking very well. The sale on Thursday (400 tons of lead and 150 tons of blende) realised 40477. 10s.

Mineral Corporation of Great Britain, 10 to 11; there is nothing remarkable to report the during the past week, operations going on much as usual. They are driving west on the course of the lode in No. 2 adit, at Hafna; the lode is 4 ft. wide, with a good mixture of lead and blende, all worth dressing. As soon as they are through the lode in No. 3 adit they will drive west to get under the rich course of ore gone down in No. 1 level. The lode in No. 4 adit end has considerably improved during the past week. At surface they are just commencing the building of the offices and the embankment for the new reservoir. In Great D'Eresby the branches of ore referred to in previous report continue to hold. At Bryn Canadon there is a nice branch of lead in the bottom of the deep level.

Frongoch, 2½ to 2¾; excellent reports continue to come forward respecting this mine, which is opening out quite equal to the best expectations formed when the property was acquired. The new perpendicular shaft is nearly completed, and will greatly facilitate operations. Grogwinion, 1½ to 2½; the thaw will enable dressing operations to be resumed, which have, in consequence of the frost, been suspended for nearly two months. The revenue will naturally suffer in consequence this half-year, but the mine is so much improved at various important points, that it is expected any present shortcomings in the profits will be more than recouped in future half years. Wye Valley, 1½ to 2; crushing will now go on again, and a sampling soon be made. West Wye Valley, 1½ to 2½; the mine will soon be in full operation again, as now that the weather is warmer the pumping wheels will be able to keep going. The indications in the bottom level are much more favourable than for some time past. Caron, 1½ to 2½; good accounts are still received as to the underground prospects, and a fair amount of lead is being produced. Marton, 18 to 18½; Marton, 15 to 16; Marton, 15 to 16; the deep level is still looking very favourable. Hartington Moor, 1½ to 2.

Rhyd Alyn are quoted 42l. to 44l.; the returns from this mine are said to be increasing monthly, and are now some 50 tons. The property is considered one of the most valuable grants in Flintshire. Cwm Brwyno, 2 to 2½; the mine is reported to be producing ore very rich for silver, and worth 4 tons per fathom in one portion of the workings. Pant-y-Mwyn, 3 to 3½; this mine is now in full operation, the water having been overcome. The Modlyn shaft has been sunk 116 yards, and the ore still continues rich and abundant in yield.

Green Hurth, 4½ to 4¾; the discovery at this mine is reported to be producing a cheering effect on all local mines, and is likely to be of a permanent character.

Pateley Bridge, 1 to 1½; Rake vein, in the 30 end east, is at present poor. The winze under this level maintains its value, 10 tons per fathom; a splendid lode. Other parts unchanged. Smelting progressing well.

Subjoined are the closing quotations:—

Ashton, ½ to ¾; Devon Great Consols, par to ½ prem.; East Canadon, ½ to ¾; East Van, 1½ to 2; Glenroy, ¾ to ¾; Glynn, ¾ to ¾; Great Laxey, 15 to 16; Leadhills, 1½ to 2; Marke Valley, ¾ to ¾; Parys Mountain, 10 to 11; Roman Gravel, 6 to 6½; Tankerville, 1½ to 2½; Tincroft, 7 to 9; Van, 16 to 17; West Basset, 1½ to 2½; When Greville, 2 to 3; Almada and Tinto, 1-16 to 1-16; Birdseye Creek, ½ to 1; Blue Tent, 2½ to 2½; Cape Copper, 20 to 31; Chontales, ¾ to ¾; Colorado United, 1½ to 1½; Don Pedro, 19s. to 21s.; Eberhardt and Aurora, 3½ to 3½; Exchequer, ¾ to ¾; Flagstaff, ¾ to ¾; Frontino and Bolivia, 2½ to 2½; Huatafala, 2½ to 3; I.X.L., ¾ to ¾; Kapanga, ¾ to ¾; Last Chance, ¾ to ¾; New Quebrada, 1½ to 1½; Placerville, 2½ to 2½; Plumas Eureka, 2½ to 2½; Port Phillip, ¾ to ¾; Richmond Consolidated, 9½ to 9½; St. John del Rey, 270 to 280; Sierra Buttes, 1½ to 1½; South Aurora, ¾ to ¾; United Mexican, 2½ to 3.

Tin.—The following figures refer to the exports of unwrought tin:—1876, 4960 tons; 1877, 6099 tons; 1878, 6209 tons. Value, 392,700l.; 448,864l.; 411,183l.: average value per ton, 79l., 73l., 66l.

CARNARVON BAY GRANITE QUARRY DISTRICT.—The above-named important centre of industry has just been professionally inspected by the well-known and eminent authority Mr. T. Currie Gregory, F.G.S., C.E., &c.

The creditors of the Blaenavon Iron and Steel Company are to send in their claims by March 10, and those of the Callow Colliery Company by March 15.

A petition for the winding-up of the Wrexham Brewery Company (Limited) is to be heard on the 16th inst.

The Central Van Lead Mining Company (Limited) is to have an official liquidator appointed to it on the 13th inst.

A petition has been presented to the High Court of Justice for the winding-up of the Indemnity Fire Office.

THE ROSEDALE AND FERRYHILL IRON COMPANY.—A meeting of the creditors was held at Middlesbrough on Tuesday, Mr. R. Morrison in the

chair. A resolution was passed to the effect that it was advisable to wind-up. Messrs. George Dyson, Edward Williams, and John Morley were appointed liquidators, and Messrs. William Jenkins, Martin Morrison, Henry Tennant, and W. R. Alden were appointed a committee of inspection.

With this week's Journal a SUPPLEMENTAL SHEET is given, which contains: Original Correspondence—Pennsylvania Railroad Mortgage Bonds; Mining Prospects on the Pacific Coast; The San Francisco Copper Mine—Cement Copper (J. Richards); Richmond Mining Company; Frontino and Bolivia Gold Company; Coal Mining in France; The Puertollano Coal Field in Spain (F. Dietzsch); Mining in the South—The New Revolution in Steel Manufacture—Strikes (W. Salmon); Welsh Granite Quarries (E. Spargo); Distress in Cornwall; Gold Washing on the Mawddach; Miplog in Cardiganshire; Parys Mountain Mining Company; Parys Mountain; and Morfa Du. Meetings of Public Companies: Glasgow Caradon Consolidated, Wheel Basset, Mold Argood. Scotch Mining Share Market. Foreign Mining and Metallurgy—Registration of New Companies—Patent Matters, &c.

LIABILITY ON PROMOTERS' SHARES.—The decision of the Supreme Court of Judicature (M. R. and James and Bramwell, L.J.) in the case of West Jewell Tin Mining Company, tends to protect capitalists against promoters and vendors. The directors Freeman, Little, and Weston allotted 5000 fully-paid 2l. shares for purchase-money in accordance with contract. Of these they received 300, 500, and 500 from Greene the vendor. The directors were in a fiduciary position. Weston paid Greene 500l. for his shares. In the winding-up the Vice-Warden ordered Weston to pay the 500l. balance, and the Court of Appeal confirmed the decision.

GREAT HOLWAY.—The statements made by the Chairman and directors of this company, at the meeting held on Monday last, will be perused, no doubt, with satisfaction by everyone interested therein. The substantial character of the works now in progress over Roskel's shaft are both requisite and necessary, and it is generally admitted, when these matters are completed and the shaft deepened to the Holway vein, that large quantities of lead will at once be raised from the levels that it is proposed to carry through the western portion of the sett, whilst the powerful machinery will effect the drainage of the great discovery made at the level engine-shaft and render it available for a thorough exploration. So far as the deeper measures are concerned, the prospects are all that can be desired, whilst the value of the True Blue operations, and the splendid discovery to the east, at Garden shaft, both above the adit level, lend additional features to the undertaking, and together seem to point out a future for the mine which could hardly have been anticipated.

D'ERESBY MOUNTAIN GROUP OF MINES.—Steady progress continues to be made with the development of the four sets comprised in this important property. At Aberllyn, on the surface nearly all the excavations and levellings have been completed for the dressing-floors, all the machinery has been brought on the mine, and the erection of the wheel has been commenced, and will probably be finished, together with the crusher, in about a month. The prospects of the mine for lead and blende are splendid, and the captain, who is a considerable shareholder, is almost ready to stake his reputation on the success of the mine. At D'Eresby Consols, the end driving towards the Cobbler's lode has been letting out water, and there are signs of early and great improvement. The different points of working at the D'Eresby Mountain also show fair signs of improvement; good progress is being made with the new shaft, and there are occasional nice stones of lead, showing that the lode there is of an ore producing character. Clementina is going on extremely well, the slope in the adit level producing good leadstuff, with every appearance of continuance. On the whole, the mines are fulfilling the high expectations which have always been held of their valuable metal producing capabilities.

WEST PATRELY LEAD.—This week's report announces the fact that the 56 fm. level has been communicated with Craven Cross shaft, and the manager says cross-cutting will be at once commenced both north and south at right angles from the shaft; and with the aid of the Cranston rock-drill, now being made, the whole of the veins in the mine will be intersected at a depth of 56 fms. below surface without the aid of any pumping machinery. The manager adds—"I am confident that ere long a valuable discovery of ore will be made at these points." Other points without change.

GREEN HURTH.—The sinking of the sump at this mine is making good progress, still free from water; the bottom is at present in shale or plate, generally unproductive, and with only one cheek or wall of the vein in limestone, but is strongly brangled with lead ore throughout. The width of the vein is not yet seen. Another fathom of sinking will bring limestone opposite to limestone, when the vein will probably be found much richer than it has hitherto been. Perhaps the most severe storm ever experienced at this mine is now giving way to more genial weather, which will enable the lead ore at surface to be dressed and sent to market, and by the time this is done it is very likely the sump will be down to the bottom of the limestone, and room made to place eight miners to drive north and south on the course of the vein under a back or cover of from 15 to 16 fathoms of known productive ground.

DUBBY SYKE.—It is not generally known that the No. 1 north and south vein, now so rich at Green Hurth Mine, passes into this company's sett only about 650 fms. south from the sump now sinking on the vein. It will intersect the Dubby Syke vein at a point where both veins may be tried in a known productive lead bearing sill of rock. It is very probable that the extraordinary richness of the vein at Green Hurth will induce the directors to at once prove the value of the vein at Dubby Syke, especially as the agent, Mr. Vipond, speaks so confidently about the success of such a trial.

SPONGE CLOTHS.—An excellent and economic substitute for cotton waste is at present being introduced by Messrs. Skirving and Co., of Manchester; one of its chief advantages being that, unlike cleaning waste, it is free from dust, sand, and other foreign matter, which frequently cause much inconvenience. For cleaning machinery, lamps, and such like the new cloths, which (22 in. by 17 in.) cost less than 2d. each, have been largely adopted by railway companies, and as they wear well, and wash like an ordinary towel, large saving results from their use. They are also useful for cleaning firearms, saddlery, accoutrements, ironwork, &c., and only require to be better known to be generally adopted.

WHEEL CREBOR.—The 108 fm. level east, which is the most advanced level in the Crowndale ground, is apparently entering a large course of ore. The lode is reported to be 6 ft. wide, yielding 5 tons of good ore per fathom. The [120, which is the next level below, is rapidly approaching the same run of ore, being worth 6l. per fathom, and improving as it advances. The upper levels will be now pushed on eastward, and in a short time large returns may be expected from the Crowndale ground.

TIN PROSPECTS.—It has several times been remarked in the *Mining Journal* that although much suffering has been caused by the low price of metals adventurers would ultimately be compensated by the economy which it has brought about in the preparation of the minerals for market, and an instance of this was afforded at the recent meeting of Wheel Jane, where Capt. Southey stated in his report that owing to recent improvements and others about to be made he anticipated effecting an almost incredible saving in returning the tin.

KILLIFRETH.—From time to time notices have appeared in the *Journal* having reference to the position this mine is assuming, notwithstanding the many disadvantages under which Cornish mining has so long laboured. So many confident opinions have been expressed and felt of its becoming a prize that it is most gratifying to observe that the report issued for the general meeting, held at Chacewater this week, is one of the most encouraging that has yet been presented. In the bottom levels the proximity of copper deposits is apparent, and the features are precisely similar (at the depth now reached) to those of the neighbouring mines which have given such princely fortunes to their shareholders. To the success of these latter no doubt science has largely contributed, and it is clearly demonstrated by careful calculations that penetration to the copper deposits is purely a matter of depth and time, their position being unmistakably indicated. The report, however, shows the mine to

be even at present (at any rate) partially independent of anticipated discoveries, inasmuch as the lodes are already rich for tin, and although the working of the majority of the productive points is at present suspended in consequence of the low prices obtainable, it appears beyond question whenever an improvement takes place the returns will immediately be resumed on a substantial scale. Killifreth is considered to be destined before the end of the current year to take a prominent position amongst the paying mines, and will reward the shareholders for their patience and outlay.

RICHMOND.—Private cablegrams from Eureka state that the mine now is far richer, and reserves are greater than ever. The furnaces are running smoothly, and the rich ore recently discovered north-west will, when smelted, prove to be much richer than that from Pott's Chamber, which last year yielded \$90,000 to \$100,000 per week.

DON PEDRO NORTH DEL REY.—The reports from this mine continue to be of the most reassuring character. The intersection of the vein by the 40 cross-cut is hailed as a complete success. They have driven 6 ft. through the lode, and have not yet ascertained its width. It averages 15 grs. of gold to 14 lbs. of stuff—say, 5 oz. of gold to the ton. Capt. Vivian has now proved that jacotinga mines hold good in depth, a theory objected to by some mining men. Without the aid of the 60-ft. water-wheel this result could never have been obtained. Some idea may be formed of the extent of this work, which has been so many years in hand, that the flat-rods connecting the wheel with the pump extend for about half-a-mile, the balance-bob, triangle-bob, &c., working smoothly and noiselessly, showing no friction. All the previous managers of this mine have persistently asserted that it contained great riches in depth. This fact has now been proved, and during the present year it is fully expected to resume the old rate of dividends.

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Mr. SLACK, having recently inspected Killifreth, feels justified in saying he believes the shares may be bought at present with a fair chance of great fruitification.

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Address, "A. L.," Mining Journal Office, 26, Fleet-street, London, E.C.

THE FRONTINO AND BOLIVIA (SOUTH AMERICAN) GOLD MINING COMPANY (LIMITED).

Notice is hereby given, that the Directors of this Company have this day DECLARED A DIVIDEND OF ONE SHILLING PER SHARE (free of income tax), PAYABLE on and after the 12th February, 1879, at the Imperial Bank, Lothbury, E.C.

And notice is hereby further given, that the Transfer-books of the company will be closed from the 5th to the 12th February instant.

By order of the Board,
J. JAMESON TRURAN, Secretary.
184, Gresham House, Old Broad-street, London, E.C., 3rd February, 1879.

TRELEIGH WOOD MINE,
REDRUTH, CORNWALL.

ALL PERSONS having CLAIMS against the TRELEIGH WOOD MINING COMPANY are required to SEND THEM IN NORTHWITH, with all particulars of their CLAIM, to Mr. THOMAS B. LAWS, the Secretary to the Company, St. Andrew's House, 28, Cornhill, London, E.C.
Dated February 5th, 1879.

LANESTOSA LEAD AND ZINC MINING COMPANY (LIMITED).

IN LIQUIDATION.
ALL PERSONS claiming to be creditors of the LANESTOSA LEAD AND ZINC MINING COMPANY (LIMITED) are required, on or before the 28th of February, 1879, to send a notice, in writing, containing their NAMES and ADDRESSES, and the particulars of their DEBTS or CLAIMS, addressed to the Liquidators of the Lanestosa Lead and Zinc Mining Company (Limited), 5, Queen-street-place, London, E.C.; or, in default thereof, they will be EXCLUDED from the BENEFIT of any DISTRIBUTION of ASSETS made before such notice shall be received.
WILLIAM COX,
FRED. W. BIGGE, } Liquidators.
Dated this 6th day of February, 1879.

J. S. MERRY,
ASSAYER AND ANALYTICAL CHEMIST,
SWANSEA.
SUPPLIES ASSAY OFFICE REQUIREMENTS AND RE-AGENTS.

THOMAS BROTHERS,
MINING SHAREBROKERS AND MINERAL SURVEYORS,
STRAND CHAMBERS,
STRAND STREET, LIVERPOOL.

Notices to Correspondents.

CHROME ORE.—Can any correspondent state the present price of chrome ore of 45 to 50 per cent. delivered in London, and also whether the supply from Russia and Turkey is still kept up?

JOHN M. STUART, of San Juan, Colorado, is requested to call or send his address to the Mining Journal Office, 26, Fleet Street, London.

GERMAN SUBSCRIPTIONS.—"B. L." (Hamburg).—The annual subscription to the Mining Journal, including postage, is 32 marks, which can be remitted by postal money order, or will be drawn for at sight, with 1 mark extra for cost of collecting.

Received.—"J. S." (Paris): We shall be glad of the particulars—"Constant Reader" (Dablin): Write to the secretary of the company, who will readily reply—"Shareholder" (New Quebrada):—"G. B."—"Shareholder" (Bath) should write to the paper in which the statement was published—"M. T." (York): That number of the Journal is out of print—"S. E." (Yarmouth): We believe the facts are as you state—"Shareholder" (Central Van):—"Common Sense" (Richmond).

THE MINING JOURNAL,

Railway and Commercial Gazette.

LONDON, FEBRUARY 8, 1879.

THE COLLIERY EXPLOSIONS OF 1879.

The first month of the new year has opened out most unfavourably, and is certainly an ill augury as to the future. In the first fortnight South Wales was again the scene of another of those terrible mining calamities which have made that part of the Principality so unenviably notorious during the past and previous years. The enquiry as to the cause of the Abercarn explosion had not been brought to a conclusion when a similar catastrophe was announced as having taken place at Dinas, by which sixty-three men and boys were killed, and one hundred and eighty widows and children were left entirely destitute. Here, again, we find no clue as yet as to how the appalling accident took place, and, judging from appearances, we are not likely to be enlightened on the subject, for, as is too often the case, those who could give the required information in all probability are numbered with the dead. This appears to have been the case at Abercarn, for whilst the Government sent down an experienced counsel to watch the proceedings and elucidate all particulars relating to it, the jury returned a verdict to the effect that no evidence had been given to show how the accident occurred. This is a most unsatisfactory conclusion, the more so that such a verdict under similar circumstances has been frequently given by juries impanelled to investigate colliery accidents. As we have so frequently pointed out, there are certain things required before an explosion in a mine can take place. There must be a certain quantity of gas mixed with the air, and a naked light. It may be that there is a naked light at the coal face when there is a fall, bringing with it a certain quantity of gas, or blasting may be the system of working, and it is always a dangerous mode in mines where gas is known to exude from the mineral being worked. But it appears that in the case of many of these accidents other than safety-lamps are adopted, and yet we do not hear of recommendations being made to take greater precautions by having lamps that are not likely to explode in certain mixtures of an explosive nature. Or, where blasting has been carried on in a mine where there has been an explosion, the same system is again carried on after an enquiry has taken place. What we should like to see is powder entirely prohibited in all mines that are known to give off gas, and where it has been found necessary to use safety-lamps.

Were these conditions carried out fully we feel sure there would be far less accidents of a fatal character in our mines than we have constantly to record. But so long as managers and men will use powder and naked lights in fiery mines so long will there be a frequent and heavy loss of life from explosions. It should, therefore, be made peremptory that those two leading elements of danger should not be allowed in certain collieries. Indeed, if blasting were not allowed in any of our collieries it would be no great loss, whilst it would ensure us against many accidents of a fatal character. Of this we had another proof only a few days ago. At the Hemsworth Colliery, near Barnsley, it appears there were not only naked lights but the coal was brought down by blasting. The consequence was that by some unknown means a quantity of gas was liberated, and this "fired," causing the death of five men. At the enquiry which took place on the 31st ult. the jury, like most others under similar circumstances, simply returned a verdict of "Accidental Death." The proprietor, Mr. Fosdike, at once stated, that for the future safety-lamps only should be used in the mine. No doubt had such lamps been adopted before the accident would never have taken place. It is, however, matter for congratulation to find the owner voluntarily prohibiting the use of what he believed to be the cause of the accident; but at the same time we think he might have gone a little further and stated his determination to stop blasting altogether. However, the loss of 63 lives in the first month of the year from explosions, to say the least, is a very bad beginning, more especially as the great probability is that the two accidents were really preventable. Happily for the unfortunate widows and children in the West Riding there is a permanent relief fund, whilst there is not one in South Wales, the men having refused to support one.

CHEAP PRODUCTION.

We are not unmixed or unqualified admirers of Sir EDWARD WATKIN. On the contrary, we think he undertakes too many engagements either for his own benefit or the benefit of the companies which he professes to serve. But we are none the less impressed with the conviction that Sir EDWARD is a man of great natural ability, and that many of his utterances are worthy the careful attention not merely of railway proprietors, but of the public at large. At the half-yearly meeting of the Manchester, Sheffield, and Lincolnshire, held at Manchester a few days since, Sir EDWARD expressed his belief that this country was becoming through a slow and painful process—a process which was disfigured by many contests and disputes—one of the cheapest nations in the world. The phrase is not a very neat or precise one, but the meaning which Sir E. WATKIN intended to convey was that the country is regaining its old power of cheap production—a power which made it in the past the foremost manufacturing community in the world. Sir EDWARD, in support and illustration of his argument, called attention to the fact that while the Manchester, Sheffield, and Lincolnshire Railway Company was paying 20s. per ton for coal five years since, the corresponding cost to the company in the six months ending Dec. 31, 1878, was only 5s. 10d. per ton. The lowest price, Sir EDWARD added, at which coal had ever been obtained by the company was 5s. 6d. per ton, so that coal is now within 4d. per ton as cheap as it ever has been within the memory of the present generation. As coal is the source of the steam power which is the mainspring of modern industry, cheaper coal must necessarily imply a power of cheaper production. But Sir EDWARD did not stop here. He showed that in the matter of labour alone the Manchester, Sheffield, and Lincolnshire Railway Company had during the past six months realised a saving of no less than 10,000%. The company appears to have done this rather by obtaining more work from its employees than by reducing their wages; but, however the result has been attained, it is none the less a substantial one. With the help of actually cheaper coal and virtually cheaper labour, the Manchester, Sheffield, and Lincolnshire Railway Company was enabled to maintain its ordinary stock dividend for the past half-year at the respectable rate of 4½ per cent. per annum. But it is not so much with railway dividends that we have now to deal; our attention is mainly occupied with the assistance which the general manufacturing industry of the country is likely to secure from cheaper coal and cheaper labour, and we agree with Sir EDWARD WATKIN that this relief will be very marked and important.

But we are not quite at one with Sir EDWARD WATKIN when he

seems to think that when our manufacturers have cheap coal and cheap labour once more at their disposal all their difficulties will cease and determine. Sir EDWARD WATKIN and the English public must not overlook the fact that the difficulties of Great Britain during the last year or two have been the opportunities of other countries, which have developed a production of their own upon a scale such as was not witnessed five or ten years since. This is especially the case with the manufacture of iron in the United States. Fifteen years since, when the great American Civil War was at its height, the Americans can scarcely be said to have had a metallurgical industry of their own; and even ten years since—that is, in the spring of 1869—we were still sending considerable quantities of our railway and other iron to the United States. But all this is changed now. As we showed on a recent occasion, the Americans now make nearly 2,500,000 tons of pig-iron in their own blast-furnaces, and a proportionate quantity of rails and other descriptions of iron and steel; and we are afraid that now the cheaper coal and the cheaper labour of which Sir EDWARD WATKIN speaks so glibly will not quite enable our ironmasters to regain American markets for their products. We may be wrong, and we would fain hope that we are wrong, but we must not lose sight of the high protective duties imposed by Congress. At the same time, if our ironmasters are enabled to produce cheaply they will certainly be enabled to hold their own upon the open markets of the world; and this, of course, is something.

THE MANUFACTURE OF COKE.

More than usual attention is now being directed in many of our colliery districts to the manufacture of coke, seeing that in the depressed state of the coal trade it has been found to be far more profitable than to sell the fuel in its raw state. South Durham has long had a comparative monopoly of the trade, the coking coal field lying near to the main line of the North-Eastern Railway having an area of about 250 square miles. The production last year was about 4,500,000 tons, although thirty years ago the consumption in the United Kingdom was estimated at only 2,500,000 tons.

To make good coke it is essential that the gases should have a free outlet, and at many places of late they have been taken from the ovens and conveyed to the engine boilers, thus performing an important duty, and effecting a saving of coal. In South Durham upwards of 14,000 coke ovens have been erected, and they find employment for about 2000 coke drawers, the quantity of coal put into the ovens being close upon 30,000 tons a day. Large coal has been extensively used, but now it has been fully ascertained that the smallest coal ground to powder will produce a good quality of coke which is much harder than the other, whilst the refuse is reduced from 5 per cent. to 2 per cent. of the whole. In the North, the results of experiments have given to the crushed coal 59 per cent. of coke and 2 per cent. of ballast or refuse, whilst the uncrushed gave 58 per cent. of coke and 5 per cent. of ballast. During the last three or four years several patents have been taken out for improved ovens, but they have not made much headway, having only been tried at a few places, the Coppée having so far been the most successful. But the utilising of the heat usually wasted has attracted a good deal of attention, and led to some important experiments.

Mr. STRAVERSON, of Durham, states that in the colliery boilers in that county not more than 6 lbs. of water on an average was evaporated per lb. of coal, but at some new coke ovens it was found that the total theoretical heat actually developed in the process of coking was equivalent to evaporating 17 tons of water per hour, the heat utilised by the boilers being equal to 2-4 tons. Were this effected in South Durham there would be a saving in coal of nearly 1,500,000 tons of coal; so that were the system alluded to generally adopted throughout the country there would be a saving from various causes of upwards of 300,000 tons per annum. One of the best arrangements noticed is having the ovens in double rows, back to back as usual, but the flues between them much larger than usual. But the comparative monopoly so long enjoyed by Durham is not likely to be continued, for other mining districts are now turning out large quantities of coke, and increasing the number of ovens.

In the West Riding of Yorkshire the coke trade has been carried on for many years, but of late it has assumed large proportions, and the productive power goes on increasing, and it is now considered by far the most profitable part of the colliery owners' business. The Silkstone and the Barnsley seams are the best adapted for coking, and some coke is now being turned out which is said to be equal to the best Durham, and is extensively used in the blast furnaces of North Lincolnshire, and at many of the steelworks in Sheffield. It is produced from the small refuse coal, thousands of tons of which have been left in the coalpits, and indeed are at the present time, as it does not pay to bring it to the surface, unless there are ovens in which to consume it, although it has to be paid for to the lessor, and to the miner for getting. In some instances it is powdered very fine before being put into the ovens, and in others it is washed in open troughs, with stoppers to catch the stones and dirt, being constantly stirred by hand-rakes. The washing also clears the smudge or slack from other impurities.

In the North of England the best coal used will give from 60 to 63 per cent. of coke, whilst the South Yorkshire will give from 52 to 56 per cent. The time occupied in carbonising varies a good deal, in some instances in Yorkshire as much as 120 hours being given to the process, but in others only from 74 to 96 hours is occupied. But much depends on the quality of the coal, for some contain more carbon than others, in which case it requires less time for conversion. The Barnsley Hard coal is well suited for coke making, as it is of a highly gaseous character, giving from 10,000 to 11,000 cubic feet of carburated hydrogen gas to the ton of mineral. But we may state that the few hours occupied in the making of coke the more inferior it is for blast-furnaces to coke burnt for a longer period, owing to its not being so easily oxidised in carbonic acid, whilst, in all probability, it gives a much larger yield. Still there is evidently plenty of room left for improvements in our coke ovens, and for the thorough utilisation of the gases.

As we have shown, there ought to be an immense saving in fuel for boilers alone, were we to have a system by which the percentage of heat generated in coke ovens utilised to a much greater extent than at present, and which there ought to be no great difficulty in effecting. The value of small coal is also an important feature in the making of coke; if we take a ton of it to cost 1s. 6d., and use it for gas making alone, it is surprising what value it will turn out. The following is the result forwarded to us by a gentleman who has taken a great interest in the subject, and has a large number of coke ovens in South Yorkshire in connection with the colliery of which he is the manager:—Assuming the price of gas to be 4s. per 1000 cubic feet there would be—10,000 ft. of gas at 4s. per 1000, 2s. 12 cwt. of coke at 9s. 9d.; 10 gallons of tar at 3d., 2s. 6d.; 18 gallons of ammoniacal liquor at 3d., 4s. 6d.; from a ton of coal value 1s. 6d., 2s. 16d.

THE HOLLOWAY PYRITES PROCESS.—We have received an interesting account of experiments made at the Penistone Works, near Sheffield, of a new process for the treatment of sulphurated ores, the principle being the utilisation of the heat generated by the combustion of the sulphur and iron in the ores, so that no other fuel is employed in the operation. A paper on the subject will be read at the meeting of the Society of Arts on Wednesday next, which will no doubt be of great interest to all practical metallurgists.

INTERNATIONAL EXHIBITION OF SCIENCES APPLIED TO INDUSTRY.—The intention of holding this exhibition in Paris between July and November, 1879, has already been announced in the Mining Journal, and it is gratifying to learn that the project is progressing favourably, and that applications for space are coming in daily, although the English applicants have been less numerous than those of the United States. For the convenience of intending English exhibitors the time for application has been extended from Jan. 20 to the end of the present month, and it is pointed out that the advantage of this exhibition is, that it has a more serious and commercial character than the last one, and the building being smaller exhibits stand a better chance of being seen and appreciated.

The Palais de l'Industrie has moreover the advantage of being of easy access for business men, and it is the most frequented and best promenade in Paris. Messrs. Caspar and Co. of Great Tower-street, are the agents for England.

WEIGHTS AND MEASURES.—Attention has been drawn by a Liverpool merchant of considerable experience in the coal trade to the question of the illegality of trading in coal by gauge or measure by canal, considering the new Weights and Measures Act. He maintains that, although a price may be quoted per 21 cwt. or per 22 cwt., so long as such weights are not described as tons, the Act is clearly compulsory with regard to the single article coal that it shall not be measured, but weighed, whatever the standard sold by.

THE AMERICAN LEAD TRADE.—In his review of the lead trade for 1878 (which is accompanied by a carefully compiled chart, showing the variations in the prices of corrodible, common, soft, and hard lead during the last five years), Mr. Edw. A. Caswell, of Pearl-street, New York, states that Colorado and Nevada have been making such gigantic strides that the domestic yield has furnished a full supply of lead for our domestic markets, all that the cartridge makers required, considerable quantity for export to China and Japan, and a liberal contribution to the surplus stock that has been accumulating. Nevada has risen from 17,611 tons in 1877 to 27,735 tons in 1878, an increase of 10,124 tons, or nearly 60 per cent., while Colorado has jumped from an insignificant figure to 6500 tons; and these two States have more than made up the combined decrease of Utah and the Missouri and Galena districts. Nine tenths of the Colorado yield has been produced during the last half of the year. The total United States production was 81,304 tons, against 73,125 tons in 1877, an increase of 11 per cent., or 8179 tons. The home consumption of the country has been over 70,000 tons, which shows our producing capacity to have been more than 10,000 tons greater than our demand; about 7000 tons of this surplus have been disposed of in foreign markets, and the gains in stocks (3000 tons) have been piled away in store-houses. The general conclusion from the events of the past year must be that pig-lead at the rate of 3c. per pound in New York, and its parity in London, is very near absolute cost of production under the most favourable auspices, and that at rates below 4c. the consumption is very largely increased. The total imports into the United States during 1878 have been but 285 tons, which were re-exported, and practically no account need be taken of them. The Mexican lead which formerly came into this market has also come to New York, and been re-shipped (450 tons). The stocks on hand Jan. 1, 1879, were estimated to be 8000 tons, of which some 7000 tons were in and about New York. On Jan. 1, 1878, they amounted to 5000 tons in all.

GREAT EXCITEMENT ON THE PARIS BOURSE BY THE FLOATING OF THE "OLD TELEGRAPH" SILVER MINE OF UTAH.

17,000,000 OF FRANCS WANTED FOR THE MINE.

300,000,000 FRANCS OF ORE IN SIGHT, PROMISED TO SHAREHOLDERS—FIRST MINING EXPERIMENT IN FRANCE—ITS PROBABLE FAILURE—COL. BERTON'S DISPATCH TO THE MINISTER OF FINANCES.

Paris walls and newspapers have been for the last fortnight overcrowded with all sorts of advertisements, réclames, and posted bills issued by the Société du Crédit Mobilier, inviting the French people to subscribe the sum of 17,000,000 fr., represented by 34,000 shares of 500 fr. each, for the purchase of the so-called Old Telegraph Silver Mine, situated in Bingham Canon, in the territory of Utah. These advertisements and réclames, as well as engineers' reports, announce the immense wealth of this property, and a future production of over 300,000,000 fr. guaranteed by nearly 3,000,000 tons of ore in sight, which, according to the engineers' report, can be easily extracted at the rate of 200 tons per day, each ton giving a net profit of 110 fr. each. In his last supplementary report Mr. Charles Ochsénus (the principal engineer employed by the promoters of the scheme), dated Paris, Jan. 14, 1879, states that the yearly net income will be 9,140,000 fr., and that it can be increased without difficulty after some projected improvement had been realised. This brilliant statement had such a fascinating effect that a company is now being formed in great haste by the Société du Crédit Mobilier, with a board of directors composed of gentlemen of high standing and respectability. The enthusiasm created apparently by the appearance for the first time on the Paris market of a silver mine of such wonderful wealth is quite natural among the credulous French people so generously invited to invest their well-earned savings in a new enterprise so full of promise, and recommended by a financial establishment which offers the shares at par, and does not retain any commission fee. It is a providential opportunity for the French people to own a mine advertised as being one of the richest in America, and which, according to Mr. Ochsénus's report, leaves far behind it the great Comstock mines of Nevada. This fact of securing for 17,000,000 fr. a property which shows a wealth of 300,000,000 fr. in sight, is more exciting than any national lottery, and is well calculated to turn the head of any Frenchman who has never crossed the Atlantic, and has never read the English papers containing the records of the several Utah mines which have been introduced during the past six years on the English market, commencing with the famous Emma Mine, of which Baron Grant, supported by the American Minister, General Schenck, was the promoter, and which was followed by many other similar properties situated also in Utah.

The history of these mines has enregistered a series of financial disasters which have been deeply felt by English capitalists, who have lost nearly all their money invested in the above mines, notwithstanding the most flattering reports of leading engineers, and the support of powerful promoters and bankers. Thus, it will be recorded that in inaugurating a mining market in the French capital the Société du Crédit Mobilier has concluded, with the best and most disinterested intention, to offer to the French people one of these wonderful Utah mines which, for the snug little sum of 17 millions of francs, will secure for its shareholders the 300 millions of francs glittering in the various levels of the now famous Old Telegraph Mine of Utah.

We have been for the last half century so much accustomed on this side to the bright future promised for mines of all descriptions that we understand well the excitement caused by the Old Telegraph Mine in the streets of Paris. We are pleased to believe that both the Crédit Mobilier, the directors of the new company, and the engineers are in good faith, and have every reason, for the present at least, to be in a mood of mutual admiration and congratulation for having secured such a wonderful property for the good and saving people of this country. But every medal has its reverse, and if there is behind the Crédit Mobilier a scheming genius as clever and as rich as the gentlemen who presented a few years ago the English capitalists with the Emma Mine, then we timely warn the French press and public against the serious dangers of investing in such mining schemes as was originated and concocted in Utah. We, therefore, consider it as a most fortunate circumstance to learn that a number of Paris gentlemen have referred the above matter for investigation to Col. Jules Berton, now in Paris for his health, so favourably known as the President of the London and Pacific Coast Mining Bureau, in which capacity his services in preventing the introduction of many worthless mining schemes on the London market have been of lasting value to English investors. Colonel Berton, who was lately instructed by the Directors of the French Mint, acting under instructions from the Minister of Finance, to report upon the condition of gold and silver mines in the Pacific States, addressed a few days ago the following despatch, which speaks for itself:—

TO M. LEON SAY, MINISTER DES FINANCES.
Paris, Feb. 4, 1879.—As there is not in Paris a paper in the position in measure to enlighten the public, of whom 17,000,000 fr. are now being asked by a financial establishment for the purchase of a certain Utah silver mine, I feel it to be my duty, as the President for many years of the London and Pacific Coast Mining Bureau, to which most of the leading Utah mines were referred for investigation by English companies, to declare that nearly all the Utah mines sold in Europe

have invariably caused financial disasters, that they have been since rejected in London, and qualified swindlers by the leading papers of England.

JULIUS BERTON.

It is to be hoped that the energetic course taken by Col. Berton will be of great benefit to the French people, and that the old Telegraph Mine will soon return to its owner in Utah, as we learn that the board of directors is being dislocated by the resignation of some of their number, which will necessarily put an end to the present excitement, and save to the industrious people of France the enormous sum of 17,000,000 fr., to the ultimate satisfaction of both the Société du Crédit Mobilier and the leading spirit of that establishment.

A VISIT TO A ROCK-BORER.

The following passing account is from a Camborne correspondent:—

I have never seen the rock-borer at work underground until I saw it in the 205 cross-cut at South Wheal Crofty. The machine, together with all its belongings necessary for its effective working, is so different from the other mechanical arrangements with which we are more accustomed that at first we hardly knew what to liken it to. To use an allegory, the largest bulk of any one portion of the entire structure is the tail, which is on the surface, consisting of compressor, receiver, &c., and through which it inhales its breath. Next follows the long slender pipe or body, conveying the motive force, first trailing on the ground, then down a deep shaft, and through long levels and around sharp corners, then down a still deeper shaft, and through other levels until at last it terminates at the head which contains the vitals of the borer itself. Having gone down the ladders and through levels for near half a mile with the pipe frequently in view, and though packed full of atmosphere, which has reached great density, yet not a breath escapes, and one is struck at the fragile looking tube being able to contain the pent-up force.

The machine of itself is of the height and circumference of a small boy, and a man can lift it about from place to place. A round bar of iron is first fixed across the level, after which the borer is strapped on to it with an iron gland, then just with one turn of a screw it starts boring in a manner astonishing "to the natives." The pulse of the little monster goes on throbbing with the power of a giant, and with a rapidity of blows which the tongue is unable to number; in the meanwhile it bores in the heart of the old grey granite at a speed defying all human labour, and taking, as it were, the conceit out of us Cornish miners at every stroke.

In passing through the cross-cut it was very apparent to anyone where the machine first commenced its operations, owing to there being the marks of the points of the holes with much regularity on each side, and in the back, at intervals of about 3 ft. These holes are bored larger than those by hand; moreover, there is no stint of dynamite in blasting, which burns them still much larger at the points. They are about the size of ordinary rabbit holes, and might, we think, be termed the rock-borer's finger points.

The work performed here was three times that of hand labour, and still increasing. This will appear a rapid stride in the method of mine development, yet it is highly probable that as time goes on still greater results will be achieved, for the reason that a thing so recently set on foot can scarcely yet be said to have arrived at maturity. Doubtless in the future deep mines with large and hard lodes, such as are met with in this locality, without boring machines for laying open the pioneer points, will be quite the exception. In mines of this class we think the rock-borer to the miner should be regarded with the same favour as the sewing-machine is to the housewife, when each may stand or sit quietly by their respective machines directing their labour, instead of performing the labour. But the question occurs to us whether it would be prudent to bring them into general application, and thereby increase the expenditure before this season of unprecedented depression which pervades copper and tin mining shall have passed.

While speaking of these borers may we venture to ask whether some electrician, or else those who have recently, with so much success, applied atmosphere to the driving of machinery, cannot construct an apparatus of some kind for boring holes in rock where the motive power can be generated on the spot; for instance, something on the principle of a galvanic battery? If such an apparatus were possible the miner might then sling it across his shoulder and take it into any corner or hole of the underground labyrinth of a Cornish mine without much trouble or the laying down of expensive machinery.

REPORT FROM CORNWALL.

Feb. 6.—There is very little doing in mining affairs, though in what there is an upward tendency is still manifest, for notwithstanding there is an evident desire to invest in the shares of the current dividend mines, which are much below their real and permanent value, holders are not, as a rule, at all disposed to sell. The stoppage of the Union Bank at Helston following so closely on that of the Cornish will not be calculated to improve matters; but there is no reason why it should have any special effect, as, indeed, we note below.

There has been quite a revival since we last wrote in the discussions concerning the Cornish Bank. When the offer of 16s. in 17. was made everybody appeared to be delighted. Now, however, it is suggested that this is by no means enough—that the assets are sufficient to warrant at least 2s. more, and that hasty action is to be avoided. The new turn of affairs is mainly due to the action taken by Mr. D. Bain, of Portreath, who holds that the assets are under estimated by the deductions for bad and doubtful debts chiefly, and thinks that further information ought to be given with regard to the working of the bank, and especially about the capital, which does not figure as an available item in the balance-sheet, and which we may, however, fairly assume is now non-existent. Mr. Bain has fairly and openly challenged investigation, and has offered, moreover, to deposit 20,000l. to be forfeited if, after personal examination of the accounts, and checking by them the statement presented, he does not so administer the affairs of the bank as to pay at least 18s., besides what may come out of the estate of Sir F. M. Williams. Of course we cannot undertake to say whether Mr. Bain is right or wrong, but it is quite certain that he has made out a very good case for further enquiry, and that just at present there is a growing disposition to take his advice.

Cornwall has had another bank failure this week. When the Cornish Bank stopped there were a few floating rumours about the position of the Union Bank at Helston. These have now been justified by the stoppage of that concern. The liabilities are 90,000l., and the assets are believed to be about 70,000l. Though the firm is known as that of Vivian, Grylls, and Kendall, there were only Vivian partners—Mrs. Cordelia Vivian, of Pencalewick, Truro, who is nearly 85 years of age, and her son, Mr. J. E. Vivian. The bank is a very old one, established in 1753, but its business of late has not been large; and out of an authorised note issue of 17,000l. only 1500l. were in circulation. Mining will not be seriously affected, as it would have been a few years since, for nearly all the mines in the Helston district are "knocked."

Wheal Basset has had an important account-day. The old "bal" is to be abandoned, but the work in part, at least, is to be taken up by a new company, which will turn its attention to the re-working of the north part of the sett. May the old mine rise phoenix-like from its ashes, and may Mr. Waddington's pluck meet with its reward here, as at Herodsfoot. It is a significant commentary on our censure of the "squabbling," without which sundry adventurers appear to consider no mine meeting complete, that Mr. Broad's turning his back on Wheal Basset after standing by it for so many years, through evil and through good report, is in a large degree due to the character of the discussion at East Pool last week.

There used to be continual controversy as to what constituted a mine. Now the difficulty is to say what constitutes abandonment, and the point will have ere long to be settled by the Court of Common Pleas. We noted a few weeks since that Dr. Foster brought Messrs. Douglas Rous and Baron Hichens before the West Penwith Petty Sessions for neglecting to cause ten shafts at Wheal Hermon, St. Just, to be covered, the mine being abandoned. The magistrates

without going into the merits of the case refused to convict on the ground that there was no abandonment of the mine, or discontinuance of the working thereof. Against this decision Dr. Foster has appealed. Richard Hichens was owner in fee of the land in which Wheal Hermon is situated, and granted a 21 years lease of the mine to Richard Boyns and James Bennetts at a rent of 20l. a year and dues, they being bound to fence. The respondents are trustees under Hichens' will. Boyns and Bennetts began to work the mine in 1876, but all underground operations (except pits) were temporarily suspended in consequence of the depressed state of the metal market, with the intention of resuming those operations when a better price could be obtained for tin. No part of the machinery had been removed. Since February the operations had been confined to digging away sand and gravel lying at or near the surface, and stamping and dressing it for tin. These operations took place 300 feet from the shafts, and the pits in no case exceeded 5 feet in depth, and were wholly exposed to the light of day. The shafts had never been used by Mr. Boyns or Mr. Bennetts. Upon these facts Dr. Foster contends that the mine had been abandoned, and that the shafts ought to have been covered. The respondents reply that there is no abandonment, as the cessation of the underground operations is only temporary. The Court will have to decide.

The East Cornwall Minerals Railway Act of 1876 is to be abandoned, so that the works on that useful little line will remain as they are. The preamble of the Bill introduced to authorise the abandonment states that the company have not exercised any of the powers conferred upon them under the Act with reference to altering the levels of their railway or of the roads mentioned in the Act, nor had they acquired any land for the purpose. They also say they have not raised any of the extension of the capital, and are unable to raise the necessary funds for the authorised works. There seems to be a fatality about the enterprise of this locality.

Par Smelting Works, originally part of the Treffry estate, have been idle for some time in consequence of the depression in the lead trade. They are large, and capable of accommodating an extensive business. Many a ton of silver has been extracted there from the argentiferous lead, and the plant has been kept abreast of the advance of scientific improvement. It is now being sought to form a company to take the works over. The project has our hearty good wishes.

A very valuable little work by Mr. J. H. Collins, F.G.S., has just been published by Messrs. Lake and Lake, of Truro. It is a "Catalogue of the Works of Robert Were Fox, F.R.S., with notes and extracts, and a sketch of his life," and presents in succinct form the full result of the labours of one of the most truly scientific men Cornwall has ever seen. Without it, indeed, the Cornish scientist cannot consider his library complete, and it demands a more lengthened notice at our hands than space will now permit. Hereafter we hope to indicate the leading features of this new debt under which Mr. Collins has laid his adopted county.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Feb. 6.—The demand for household coal shows no abatement, and some of the collieries are taxed to the full to keep up with orders. In these instances the masters would have the men work overtime, but a fear that such action might lead to a departure from the eight-hours system influences the men to refuse to close with their employers' offer. The partial break up of the frost is welcomed by the colliery proprietors as enabling them to send their minerals away by water with greater ease. A phase of uncertainty has this week been introduced into the trade consequent upon the Chairman of the Birmingham Canal Company having informed an influential deputation of mineowners that the directors will be unable to acquiesce in the masters' petition that all boats should in future be indexed in accordance with the new statute ton. By their Act of Parliament the Canal Company are, the traders are informed, bound to require a ton to be made up of 2400 lbs. as distinct from 2240 lbs., the new weight; the old and bad system of guaging will, therefore, continue. The result of all this will be that the new Act will practically become a dead letter, as the trade will, to avoid confusion and inconvenience, resort to selling large quantities in "lots" or "parcels" of so many pounds, and not in tons. This practice instead, therefore, of being as now exceptional will become the rule—at any rate, as regards carriage by water. The question arises whether the Canal Company's private Act is not over-ridden by the Act of more general application; but we are not lawyers, and we assume that Mr. Moon before he started the question has fully informed himself as to the law of the case.

Pig-iron is in very quiet demand, whether reference be had to all-mine, part-mine, or cinder qualities. Prices continue weak notwithstanding the limitation of production, and this is more particularly the case as regards foundry iron. Instances are mentioned where pigs are being bought by furnace proprietors, who are also ironfounders, at a less price than they themselves can make them for. Finished iron is not in larger sale upon the week. Ironworkers are unable to secure anything like regular employment, and it is understood that the operatives of one large firm who have only been at work one week since Christmas, and who are now again idle, have been notified that the machinery will have to remain shut down for a month at least unless something unusual should in the meantime turn up. The mills and forges at the Corngreaves Ironworks, belonging to the New British Iron Company, whose colliers are still out, are now among the idle plants in South Staffordshire. Only 25 furnaces are now in blast in South Staffordshire, out of six times that number erected.

The colliers in the Silverdale district of North Staffordshire, numbering over 5000, have submitted to the notice for a 10 per cent. drop. The reduction includes the whole of the employees at the Apedale Collieries, Chesterton Collieries, Messrs. Stanier's Silverdale Works, Messrs. Penke's Collieries, the Knutton Mining Company's Works, and the Racecourse Pit, Silverdale. A promise has been made in some instances to lower the cottage rents. The men at the Crewe Coal and Iron Company's Works, and the Pheysett Collieries, have also received 10 per cent. notice, but have arranged to accept a 5 per cent. drop for the present.

REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

Feb. 5.—I am glad to see a report from the British Silver-lead Mine among the mine reports in the Journal. If Mr. Fraser continues to get 2 tons of silver-lead ore and 1 ton of rich blende from the mine he will make a fortune and a mining reputation. There is much sameness in the bulk of the reports from lead mines in the Principality. Those from the East Van are uniformly depressing, and I should think that Captain Williams with his good success at the Van itself must be getting tired of writing them. The Pantymwyn controversy has subsided, but what has become of the 6 tons of lead per fathom. Is it anywhere but on paper? The spirited proprietors of North Hendre Lead Mine are contemplating the introduction of machine boring in their exploratory work. If it is allowable to mention the Llanrwst Mine, I would express my gratification at the signs of improvement recorded. At the Parys Mountain Mine signs of improvement should now become more marked, and I hope they may. If Morfa Du holds on as it has begun its success should be assured.

Passing by Cardiganshire, where there is nothing extraordinary to note, I observe a new venture to the south-east in Carmarthenshire, in the Llansawel Lead Mine, the purchase-money for which is to be one-half the capital. "The killas," we are told, "which forms the country rock, and the elvan course, which is in close proximity to your mines, are favourable indications of this class of mine." But is not this a rather loose and antiquated description from an Associate of the Royal School of Mines? I wish the mine success, but 15,000l. is a large sum to pay for speculative property. The Llanfrynach Lead Mine, on the confines of Carmarthenshire and Pembrokeshire, is doing well. A well-defined east and west lode, made up of sugary quartz, and containing a good deal of lead, was discovered sometime ago. From this and from the old lode about 150 tons of ore are now derived monthly. There is a good captain, and one of the owners live on the spot.

Progress is being made with the extension of the Whitland and Cardigan Railway towards the latter town. Although little more than a surface line the railway is a great acquisition to the locality. It is a pity, however, that funds do not allow of easier gradients and curves not quite so sharp. A company has been formed, it is said, to extend the Maenclochog Railway from the Rosebush slate quarries to Fishguard. The new slate quarries of this district are opening out satisfactorily, and the old Whitland Abbey quarry is about changing hands—at least it is on sale. The report that the New Law Courts are to be roofed with foreign slates is contradicted, and I am glad of it. The slates are to be supplied by Mr. Assheton Smith, from his Dinorwic quarries. There is a lull in the Llangynog Railway enterprise. The Merionethshire Railway Company ask for an extension of time, while the first sod of the Ruthin and Carrig-y-druidon Railway is about to be cut and the works commenced. The brick and tile trade is suffering from the cessation of building on account of the severity of the weather. The papers are full of the record of seasonable benevolence, in which quarry and mine owners figure largely, and they are evidently doing their duty liberally. Operations have been resumed to a small extent at the Preesgwyn Collieries, but no improvement can be recorded in the coal trade.

REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

Feb. 6.—Exploring operations have been proceeded with during the week at the Dinas pit, and it is believed that some of the bodies will be reached to-day. Already the bodies of six horses in a shocking state of decomposition have been reached in the stable of the colliery. It is believed from what the exploring party observed that the 63 men were all killed on the spot. A meeting has been held at Cardiff to raise a fund for the relief of the relatives of the killed. A committee was formed to carry out the objects of the meeting. One of the speakers remarked that one of the reasons why the fund progressed so slowly was the refusal of the miners to form a permanent relief fund. No one would desire to check charitable efforts, but the men evidently ought to have initiated this fund, warned as they were by the terrible Abercarn explosion.

The Plymouth and Aberdare colliers have doubtless taken a wise step in coming to terms with the company. It will be remembered that the men when asked to accept a 10 per cent. reduction declined most persistently, but afterwards offered to give one day's earnings for one month. This the masters declined to take, and the miners were told that unless they accepted the terms offered unreservedly the pits would be closed. After being idle for two or three days wiser counsels prevailed, and a meeting was held in which the majority was in favour of resuming work at the 10 per cent. decrease. With men being weeded out at the various works surely the Aberdare and Plymouth colliers have acted wisely. At Cyfartha about 100 men have been discharged, while at Dowlais a number of men which are estimated at between 400 and 500 have been paid off.

A dispute seems likely to occur at the Pwllgwyn Colliery. The proprietor has been paying rather more per ton for cutting the Trefores Fuch seam than other colliery proprietors, and declined to do so any longer. An arbitrator was called in, but the men now refuse to abide by his decision.

From what can be judged, there appears to be a chance of a slight improvement in the Iron Trade in the Spring of the year. Up to the present, however, there cannot be said to be any alteration for the better. Masters are turning their attention to decreasing the cost of production in every direction. It is manifest that if orders are to be got in any number masters must be enabled to quote low prices so as to successfully compete with other countries, and for that reason the men must not grumble at reasonable reductions, although of course wages are at a low ebb now. Both parties must stick by one another if Great Britain is to come off triumphant in the struggle against protective tariffs and so on. It is reported that lately a large American order was only missed by a narrow margin—a thing which all must be glad to hear. There is, as usual, but little doing in rails (iron). Clearances during the week have been mainly to Aspinwall and Bahia. Bars are rather quiet, and pigs are not materially altered. At Pentreoch Works the men are employed on day-to-day contracts. The Tin-Plate Trade, however, shows a slight amount of improvement. The demand is better, and prices have moved a trifle during the last few days.

The Coal industry is fairly active, and during the last few days shipments have improved. The complaint is not so much as to the demand, but the lowness of prices. Steam qualities are in request on foreign account, and quotations are firmer. The house coal department is apparently not quite so active, but a fair amount of business is done on home account. As for patent fuel, a slight improvement can be noted. Shipments have not been over large, but some good orders are in course of execution.

TRADE OF THE TYNE AND WEAR.

Feb. 5.—There has been a more cheerful and hopeful feeling shown amongst merchants and manufacturers during the past week; the chemical and other trades are improving, especially with America. The coal shipments from Tyne Dock have also improved this week. The demand for best gas coal continues good. Importations of iron ore from Spain have increased at the dock; this ore is sent by rail to Sheffield, Middlesbrough, Consett, &c. The information that the dividend in North-Eastern Consols would be 7 per cent. has given much satisfaction, which is only a reduction of 1 per cent. when a much more serious fall was anticipated. The steam coal works in Northumberland have again only been moderately employed; the work indeed at those collieries fluctuates very considerably, and cannot be expected to become settled or permanently improved until the Baltic trade opens, which is expected to occur shortly. A struggle has been going on some time between this field and the Westphalian coal field; and as the German coals are heavily weighted with railway freights, and the cost of raising the steam coal north of the Tyne has been much reduced of late, there is little doubt that the North of England coal will hold its own in those foreign markets. The coke trade does not improve, but rather the reverse, and this causes the output at coking works in Durham to be further curtailed, and works are also still being closed; important reductions have been made at many places lately, and a general reduction at the works of the owners who form the Coalowners' Association is now contemplated. At a joint meeting of the Durham Coal Trade and the executive of the Durham Miners' Association, held on Tuesday, at Newcastle-on-Tyne, the following proposition was submitted:—"That a reduction of 20 per cent. on present underground wages be a condition precedent to the re-establishment of the sliding scale; that a reduction of 12½ per cent. should be made on surface labour, but so that the wages of able-bodied men be not brought below 2s. 6d. a day. In the event of a scale being established, it shall have no limit upwards or downwards, and shall be subject to termination on 12 months' notice." The men offered to submit to a reduction of 7½ per cent. This was deemed too little, and the subject stands over for consideration.

We have to record the death of Mr. John Taylor, of Earsdon, Northumberland. Although not technically a public man, few of the inhabitants of Northumberland were better known than he was, for Mr. Taylor may be said to have been at the head of the profession of mining engineering. Besides being a coalowner himself, he was mining agent for the Duke of Northumberland, Col. Towneley, and many other influential coalowners. He was a worthy representative of the long line of north county viewers, and although not so well known to the general public as some of the departed chiefs of the northern coal field among professional men and those connected with mining enterprise generally, he was considered as great an authority, and his opinion was held in equally high repute. In a quiet, unseen, and unpretending way there were few men in the northern counties so ready to cheerfully and ungrudgingly extend a helping hand to struggling and deserving merit. He was the managing director of the extensive collieries of Ryhope and Haswell, and occupying this prominent position was as well known

in the county of Durham as in Northumberland. Since the time of the celebrated Mr. Buddle many eminent viewers and mining engineers have flourished in this district, the most prominent being the late Mr. Nicholas Wood, Mr. J. E. Forster, Mr. T. John Taylor, Mr. Mathias Dunn, Mr. Jas. Easton, Mr. W. Barkus, &c. Very few of these men are now left, and Mr. John Taylor will be much regretted by all who came in contact with him.

The Iron Shipbuilding Trade is expected to be brisk when moderate weather returns, as most of the great yards are fairly supplied with orders. The late severe weather has prevented to a great extent the operations of iron shipbuilders. It is intended to reduce the wages of the operatives of those works 10 per cent.

The Chemical Trade has been much stronger the past few days. Several orders have been received from America, and a good business has been done within the last few days with merchants for forward delivery. The chemical trade has been extremely dull in those rivers during the past two years, but it is expected that a revival has now set in which will prove of great advantage to all concerned.

CLEVELAND IRON STATISTICS.—The Cleveland ironmasters' returns for January show an increase of stocks on December of 32,357 tons, an increase in the make of Cleveland pig-iron of 3154 tons, a decrease in the make of hematite, &c., of 1924 tons, and a decrease in coastwise shipments of 7734 tons. The falling off is mainly in exports to Scotland.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

Feb. 6.—In the lead mining districts of Derbyshire the business done of late has been moderate, the weather being anything but favourable for surface operations in particular. As yet there have been no signs of any new works being opened out, the price of lead not favouring speculation at the present time. Not much ironstone is being raised in connection with the coal measures, our ironmasters depending in a great measure on the liberal supplies they receive from Northamptonshire, and which being obtained close to the surface are raised at a moderate cost, whilst there is a very fair rate by the Midland. Lincolnshire is also supplying one of the largest companies with ore, which is well adapted for smelting with an admixture of the local stone. At the collieries in North Derbyshire connected with the Miners' Association the men have accepted arbitration on the wages question, and go on working at the existing rate of wages to the end of March, when the decision of the arbitrators or the umpire will be carried out. As had generally been the case in these disputes, it is considered probable that there will be a sort of compromise—that is, the arbitrator not agreeing an umpire will be called in, and he will divide the percentage. The time fixed for the arbitration has been favourable for the men, seeing that the severe weather has caused a very active demand for house coal, so that prices have gone up, but no doubt will melt down again along with the snow and frost. Just now a large tonnage of house coal is being forwarded from Clay Cross, Blackwell, Tibshelf, Langley Mill, and several other collieries to London and the South, so that the miners continue to be well employed. In steam and other coal, however, there has been no improvement, and prices are very low and unremunerative. At some of the ironworks business has become more active, and the men better employed. Still in Chesterfield as in other parts of Derbyshire there is a good deal of distress, aggravated by the severity of the weather.

In Sheffield things are looking a little better, there having been an improvement in some of the lighter branches. Makers of the best qualities of cutlery have become busier, so that their workmen have been much better employed. In the heavy departments, with one or two exceptions, there has been no change for the better, and a large number of the hands are still badly off, many being obliged to rely upon the Mayor's fund for a living. Makers of Bessemer rails are still doing very well, and are clearing out orders, but few new ones are coming to hand. Iron rails and railway material are still in moderate request, there not being much doing in the former in particular. Engines of every description and general machinery have been very quiet for a long time, and still continue so. Ship and boiler plates do not move off so well, business with the Clyde yards having in no way improved of late. Crucible steel is also quiet, but in some specialties there is a tolerably fair production. At the foundries business is such that a movement is on foot to get the men at some of them to increase their working hours, so as to prevent a reduction of wages. Not much is heard with respect to heavy armour-plates, but their day, so far as relates to the British Navy, is evidently nearly over, so that they will, like so many other things, have to give way to steel. In pig-iron transactions are still moderate for ordinary brands, but hematites are still in good request on the part of Bessemer makers. In South Yorkshire the house coal trade is still brisk, and a heavy tonnage has passed over the Great Northern from Doncaster to London, Peterborough, and several of the southern and eastern counties. Steam coal does not sell at all well, and as it has to be got at the same time as the households, a great deal has to be stacked; and with such weather as we have had of late, of course it greatly deteriorates by wet and exposure. Engine fuel meets with a very slow sale in the Lancashire and Cheshire markets, although it can be purchased at a very low figure. A good deal of small coal is now being converted into coke, and meets with a rather ready sale for iron smelting and other purposes.

The Tipton Colliery, close to Chesterfield, which was opened out and developed by George Stephenson, and since whose death it has undergone many changes, is once more in the market for sale by tender. Mr. Booth, late proprietor of a colliery at Stretton, and whose affairs were placed in liquidation, has received his discharge.

It is said that the Stanhope Silstone Colliery when wound-up will not turn out so well as was anticipated, and that some persons in the Barnsley district will be heavy losers by their connection with it. The wages agitation in South Yorkshire has resulted in a large addition to the number of members of the Miners' Association.

REPORT FROM THE FOREST OF DEAN.

Feb. 6.—It is our gratification to report that the improvement in the coal trade has been well maintained to the present date, but should the thaw continue, as perhaps we may reasonably expect it will, it is hardly likely the present briskness will be kept up for any length of time. It consists mainly of demand for household coal, the iron trade being still exceedingly dull; and instead of iron mining looking up we may expect the opposite—locally, at all events. Sir Ivor Guest having just discharged a large number of workmen at Dowls, some of them long under the firm, and others skilled tradesmen, looks like further depression; and as Dowls furnaces are supplied with ore from the Forest the miners up here are sure to feel the ill effects of such stoppage. The local forges are fairly engaged at present, orders to hand being equal to produce this condition of work. Mr. Chivers has all ready for commencing his tin-plate works, but has been held back by the weather. As soon as it is judged safe and prudent to do so a commencement will take place. It is stated that some additional trade in tin-plate making is doing at Lydney, but we believe it is correct to say that there is no briskness.

The weather has been very much against advancing the works at the Severn Bridge, and there is a probability that nearly an equal number of weeks as the frost has lasted will have to be added to the period for completing the bridge and the date of its opening. Still next summer will doubtless see its opening; and at whatever time the finishing strokes ready for opening may take place, the day will be one of great and absorbing interest to the foresters and many others, including the merchants of the ancient city of Gloucester.

Prices of coal have just lately tended a trifle upwards, but if mild weather comes they will scarcely be maintained.

CONDENSING STEAM AND PRODUCING MOTIVE POWER.—The water from a lodge is, according to the invention of Mr. ROBERT WORTLEY, of Oldham, conveyed by pipes into a well about 20 ft. below the level of the lodge, into which is inserted the lower end of a pipe 32 ft. high, equal to the pressure of one atmosphere, the upper end of which pipe is placed in a cistern; this cistern is in communication above and below by pipes and valves with a second cistern, in which is a float. The lid of the second cistern is in communication with the cylinder of a steam engine. The lower end of the second cistern is in communication through a valve with the hot well and with the lodge. When the water from the first cistern enters the second cistern the float rises, and the water from

the lodge keeps the well at the same level. When the steam from the cylinder of the steam engine enters the second cistern it lowers the float and drives the water into the hot well and back into the lodge; the steam from the second cistern then passes through the top valve into the first cistern and is there condensed; the partial vacuum thus formed then raises more water from the well, and the operations are repeated as before. In the lid of the first cistern is a pump to draw off the air, and this pump is used to fill both the cisterns with water on commencing work. Between the lodge and the well is a turbine, or water wheel, or other hydraulic engine, to make use of the fall of water between the two levels.

THE COAL TRADE.

Mr. J. R. Scott, the Registrar of the London Coal Market, has published the following statistics of imports and exports of coals into and from the port and district of London by sea, railway, and canal during January, 1879:—

By sea.	Ships.	Tons.	By Railway and Canal.	Tons.
Newcastle	204	184,458	London & North-Western	122,193
Seaham	26	14,349	Great Northern	114,108
Sunderland	124	96,970	Great Western	77,870
Middlesbrough	2	283	Midland	164,584
Hartlepool	69	25,817	Great Eastern	65,208
Scotch	13	7,661	London, Tilbury, & Southend	34
Welsh	5	2,228	South-Eastern	1,877
Yorkshire	14	2,019	Grand Junction Canal	154
Small coal	4	2,469		
Cinders	1	66		

Total 444 333,496 Total 546,730 6
Imports—Jan., 1878 508 333,112 Imports during Jan., 1879 501,243 3

Exports.	Tons.
Railway-borne coal passing in transit through district	95,643
Sea-borne coal exported to British possessions, or to foreign parts, or to the coast	54,368
Ditto, sent beyond limits by railway	15,927
Ditto, by canal and inland navigation	1,632
Railway-borne coal exported to British possessions, or to foreign parts, or to the coast	46,730
Ditto, by canal and inland navigation	182
Sea-borne coal brought into port and exported in same ships	235
Total quantity of coal conveyed beyond limits of coal duty district during January, 1879	214,717
Ditto, January, 1878	195,683

General Statement, from the 1st to the 31st Jan., 1878-1879.
Increase in coals imported by railway 45,487
Increase in coals imported by sea 3,384 48,871
Less increase in exports 19,034
Total decrease in trade within London district 29,837

THE COPPER TRADE.

Stocks in Europe:—	Tons.
Chillares and regulus, Liverpool & Swansea (equal to fine)	4,136
Chili bars in Liverpool	20,873
Ditto Swansea	2,061
Chili ingots in Liverpool	—
Ditto Swansea	—
Foreign copper (chiefly Australian) in London	5,504
Ditto landing	378
English copper in London	50
Chili bars and ingots and Barilla in Havre	6,284
Other copper in Havre	250 = 39,528
Afloat and chartered from Chili to Europe (advised by mail):—	
Ores and regulus (equal to fine)	2,855
Bars and ingots	4,980 = 47,163
Afloat from Australia (advised by mail):—	
Fine copper	2,215
Afloat and chartered from Chili to Europe (advised by cable):—	
Fine copper	3,800

Total 52,978
Leadenhall-street, February 1. HENRY R. MERTON AND CO.

The stocks of Chili copper produce remaining unsold at Swansea on Jan. 1 were—Ore, 2127 tons; regulus, 6521 tons (since increased by arrivals to 7854 tons); and copper, 1668 tons (since increased by arrivals to 2662 tons). The private sales were—Ore, 680 tons; regulus, 578 tons; and copper, 611 tons. The present stocks are—Ore, Chili, 1447 tons; Cape, 1453; Betts Cove, 1800; Spanish, 120—4825 tons; Chili regulus, 7109; Betts Cove, 550—7659 tons; and Chili copper, 2051 tons. These totals represent about 6300 tons fine copper. There have been three sales of Cape ore—On Jan. 1, 510 tons, at 11s. 1d. per unit, for a produce of 31 per cent.; on Jan. 15, 588 tons, at 10s. 11d. per unit, for a produce of 34 per cent.; and on Jan. 29, 591 tons, at 10s. 9d. per unit, for a produce of 31½ per cent. The private sales of Chile ore and regulus referred to above fetched 10s. 6d. and 11s. per unit respectively. On Jan. 10, 250 tons of New Queensland sold at 11s., and on the 20th 250 tons at 10s. 9d. per unit, and three cargoes, about 1300 tons of the same ore, but of lower produce, have just been sold at 10s. per unit. There has been a very active trade in bar copper, which has changed hands chiefly at 87s. for g.o.b.s., but at the present time sales are being made at 86s. The Wallaroo copper sold on Jan. 28th—802 tons—realised an average of 64s. 17s. 2d. per ton, and the Burra—321 tons—64s. 1s. 4d.—Feb. 1.

Chili bars did not show much alteration during the greater part of the past month, the price of g.o.b.s. having fluctuated between 57s. and 58s. 10s. Some improvement in the Indian exchanges, consequent on the rise of silver to 51d. per oz., enabled some orders to be executed in copper braziers and yellow metal for that quarter, but the demand soon fell off, and the market has lately become depressed. Chili bars are nominal sellers, and the general enquiry for copper seems—Ore, Chili, 1447 tons; Cape, 1453; Betts Cove, 1800; Spanish, 120—4825 tons; Chili regulus, 7109; Betts Cove, 550—7659 tons; and Chili copper, 2051 tons. These totals represent about 6300 tons fine copper. There have been three sales of Cape ore—On Jan. 1, 510 tons, at 11s. 1d. per unit, for a produce of 31 per cent.; on Jan. 15, 588 tons, at 10s. 11d. per unit, for a produce of 34 per cent.; and on Jan. 29, 591 tons, at 10s. 9d. per unit, for a produce of 31½ per cent. The private sales of Chile ore and regulus referred to above fetched 10s. 6d. and 11s. per unit respectively. On Jan. 10, 250 tons of New Queensland sold at 11s., and on the 20th 250 tons at 10s. 9d. per unit, and three cargoes, about 1300 tons of the same ore, but of lower produce, have just been sold at 10s. per unit. There has been a very active trade in bar copper, which has changed hands chiefly at 87s. for g.o.b.s., but at the present time sales are being made at 86s. The Wallaroo copper sold on Jan. 28th—802 tons—realised an average of 64s. 17s. 2d. per ton, and the Burra—321 tons—64s. 1s. 4d.—Feb. 1.

Imports 1878. 1877. 1876.
Copper in ores and pyrites ...Tons 31,002 31,718 24,266
Ditto regulus 16,705 16,850 13,952
Ditto bars 39,370 29,743 39,145
Total imports 86,007 91,309 77,323

Exports 1878. 1877. 1876.
Manufactured copper, &c. 25,208 24,919 20,942
Unmanufactured ditto 17,319 11,620 11,703
Foreign ditto 12,719 14,157 17,234
Total exports 55,246 50,726 49,884
Leadenhall-street, Feb. 5. VIVIAN, YOUNGER, AND BOND.

The chief feature of interest was the public sales on the 28th ult., when 802 tons Wallaroo cake sold at 65s. 7s. 6d. and 64s. 12s. 6d., average, 64s. 17s. 2d.; 5 tons Wallaroo ingot, 64s. 17s. 2d.; 120 tons Burra cake, 64s. 17s. 2d., average, 64s. 4s. 2d.; 120 tons Burra ingot, 63s. 15s. to 64s. 2s. 6d., average, 63s. 17s. 11d.; 10 tons Deer Ears ingot, 60s. The value of Chili bars has fallen to 55s. 10s., and the tone of the market is very inanimate. Charters from the West Coast are advised for first half of January 1900 tons; for second half, 2300 tons. We quote—Chili bars, 55s. 10s.; Wallaroo, 65s. 7s. 6d.; Burra, 64s.; tough, 61s.; manufactured, 66s. to 68s. The imports and exports for the whole year, 1878, as per the Board of Trade Returns, were—

Imports.	1878.	1877.	1876.
Ore	102,954	115,466	74,966
Regulus	33,410	33,701	27,904
Copper	39,380	40,216	39,145
Exports.	1878.	1877.	1876.
Foreign raw	12,719	14,157	17,234
English raw	17,319	11,620	11,703
Manufactured, including yellow metal and brass	27,347	28,297	23,583

London, February 6. FRENCH AND SMITH.

THE TIN TRADE.

	Dec. 31.	Jan. 31.	Jan. 31.	Jan. 1.
	1878.	1879.	1878.	1877.
Straits and Australian, spot	9,124	9,122	7,980	7,616
Ditto, landing	317	403	288	254
Straits afloat	790	1,225	855	995
Australian afloat	1,764	1,615	3,370	2,370
Banca, on warrants	1,562	1,866	1,454	1,480
Billiton, spot	1,810	1,875	1,250	1,37
Ditto, afloat	1,100	800	1,125	1,200
Australian tin in Holland	386	341	570	730

Total 16,843 17,437 16,936 16,602
Deliveries during the month in
 London 894 1,050 1,147 836
 Ditto, Holland 328 351 461 433

Total 1,222 1,401 1,608 1,269
Also 140 tons overside to America.

Shipments during the month from	Tons	575	950	825	675
Straits	820	483	617	625	
Ditto, Australia					
During 1879.					
1878.					
Shipments from Straits to London	3,940	3,051	5,892		
Shipments from Australia to London	8,515	9,383	6,739		
Deliveries of foreign tin in London	12,205	10,928	10,590		
Banca in Trading Company's hands and afloat, 1717 tons.					
London, January 31.					

We have to report a dull market for tin all this month. In the face of unremunerative trade, very heavy stocks, and increasing supplies (more especially from the Straits), operators for a rise have found it an impossibility to maintain the late unjustified advance. Hence a decline since last month of 2s. to 2½s. If the trade should still feel disposed to follow our advice, we would

continue to recommend very cautious buying, rendered all the more necessary as the main part of our stock is in one hand only. This may entirely upset the market at any moment. The Dutch Trading Company's first sale in 1879 took place on the 28th inst., when 19,479 slabs Banca were sold from 36½s. to 36½s. f., average 36-55s. f., and 3417 slabs Billiton at 35½s. to 36s. f., average 35-80s. f. Next sale will take place towards the end of March. Banca has moved off slowly, the price declining from 39s. f. to 36½s. f.; since the sale there are buyers at 36½s. f. Billiton: The demand for consumption was very small at the beginning of the month, the price rapidly falling from 37½s. f. to 35½s. f., at which latter figure several parcels on the spot and landing changed hands. There are now buyers at 35½s. f., holders asking 36s. f. On Monday, the 10th proximo, a public sale of 12,000 piculs Billiton will take place at Batavia.

The position of Banca tin in Holland on Jan. 31, according to the official returns of the Dutch Trading Company, was:—	1879.	1878.	1877.
Import in January	Slabs 13,995	4,061	14,370
Deliveries in January	—	8,117	7,211
Stock second hand	62,527	47,516	46,860
Unsold stock	16,934	14,002	14,870
Total stock	79,821	61,508	61,030
Afloat	Piculs 19,600	3,800	9,025

Statement of Billiton:—
Import in January Slabs 8,700 9,429 6,600
Deliveries in January 3,420 5,709 7,463
Stock 63,192 42,171 29,756
Afloat Piculs 17,000 10,000 12,000
Quotation Banca 36½s. f. 40s. f. 44s. f.
Jan. 31. Billiton 35½s. f. 39s. f. 42s. f.

These combined returns of Banca and Billiton for 1879, compared with those for 1878, exhibit—An increase of the import for January of 289 tons; a decrease of the deliveries for January of 122 tons; an increase of the stock second hand of 1138 tons; an increase of the unsold stock of 92 tons; an increase of the total stock of 1230 tons; a decline of the quotation of Banca of 5s. 16s. per ton. The Government Returns for the month of November are—

EXPORT OF TIN FROM HOLLAND.									
	November.			Eleven months.					
	1878.	1877.	1876.	1878.	1877.	1876.			
Germany.....Tons	379	290	278	3192	3611	3214			
England	13	—	64	144	326	343			
Belgium	80	114	168	1305	1573	2184			
France	13	6	48	355	549	659			
Hamburg	60	56	43	574	458	423			
United States	3	—	—	13	75	62			
Other countries ...	88	69	23	633	817	601			
Total	636	541	625	6310	5539	7201			
Rotterdam, January 31.									

The market has been quiet but steady throughout the month at the decline to 59s. 6d. from the opening quotation of 61s. Latterly the higher prices ruling in the Straits, owing to an American demand, strengthened the market, and with a fair enquiry, hardened to 60s. for fine foreign, but closed easier at 59s. 3d. to 59s. 6d. The deliveries for the month were 350 tons from Holland, and from London 1030 tons foreign. The January shipments from Australia are estimated at 480 tons, and from the Straits 1100 tons. The stock of foreign tin in London and Holland is thus estimated:—

	1879.	1878.	1877.	1876.
Foreign tin in London	Tons 9,438	9,521	8,268	7,865
Banca tin in Holland	1,562	1,966	1,458	1,450
Ditto (in Company's hands)	700	529	438	449
Billiton tin in Holland	1,810	1,975	1,318	930
Total	13,500	13,991	11,599	10,694
Quantity of tin afloat for Europe	5,000	5,000	5,000	4,500

Feb. 5. VIVIAN, YOUNGER, AND BOND.

There was a dull dragging market for this metal during the past month, and value of foreign fell about 30s. per ton. The most significant fact in connection with the statistics is the continued falling off in Australian shipments. During the past three months only 1878 tons were shipped, showing a falling off of 1484 tons as compared with the corresponding three months 1877-78. Considerable purchases were made in the Straits for Europe during January, there being a slight margin of profit to importers here; the price there has now risen owing to a brisk demand for America. Deliveries have been somewhat impeded by the severity of the weather. We quote Straits and Australian 59s. 15s.; English ingots, 62s. 10s.; Banca, 36½s. f.; Billiton, 35½s. f. Below we give our usual statistics:—

	1879.	1878.	1877.	1876.
Foreign tin in London	Tons 9,438	9,521	8,268	7,865
Banca tin in Holland	1,562	1,966	1,458	1,450
Billiton tin in Holland	1,809	1,974	1,318	930
Afloat for Europe, Straits, advised by mail				
and wire	785	1,200	1,068	790
Afloat, Australian ditto	1,050	1,550	3,372	2,000
Afloat, Billiton	1,100	800	1,000	1,000
Banca in Dutch Trading Co.'s hands	700	529	438	417
Banca afloat, by sailing vessels	1,225	1,188	220	564
Total	18,269	18,729	17,108	15,057

February 6. FRENCH AND SMITH.

GAS, AND THE ELECTRIC LIGHT.—An interesting contribution to the discussion as to the relative efficiency and cost of gas and the electric light is furnished by the report of a committee appointed by the directors of the Gaslight and Coke Company, in London. The results of a series of experiments are shown in a set of tables, and are greatly in favour of gas lighting. The cost of producing a light equal to 1727 candles by the electric machine was 4s. 6d. per hour, the necessary apparatus involving an outlay of 350l., while four sun-burners, giving an equal light, could be fitted at a cost of 100l., and the expense of working the same with 540 cubic ft. of gas per hour would be 2s. 3d. If the electric light be shaded by an opal glass one half of the light is lost, thus throwing the whole of the cost of 4s. 6d. on the one half of the light available. This brings the cost up to 9s. per hour as against 2s. 3d., the cost of gas, or just four times the amount.

HOLLOWAY'S OINTMENT AND PILLS—COUGHS, INFLUENZA.—The soothing properties of these medicaments render them well worthy of trial in all diseases of the lungs. In common colds and influenza the pills taken internally and the ointment rubbed externally are exceedingly efficacious. When influenza is epidemic this treatment is easiest, safest, and surest. Holloway's pills and ointment purify the blood, remove all obstructions to its free circulation through the lungs, relieve the overworked air tubes, and render respiration free without reducing the strength, irritating the nerves, or depressing the spirits. Such are the ready means of saving suffering when afflicted with colds, coughs, bronchitis, and other complaints by which so many are seriously and permanently afflicted in most countries.

LEAD ORES.			
Date.	Mines.	Tons.	Price per ton.
Feb. 4—Foxdale	80	£13 10 0	Mining Co. of Ireland.
6—Van	100	9 15 6	Walker, Parker, and Co.
—ditto	180	10 5 0	Mining Co. of Ireland.
—ditto	50	10 0 0	ditto
—ditto	50	9 17 6	E. C. Goodhardt & Co.
—ditto	50	9 18 0	Far Smelting Works.

THE BAVARIAN LEAD MINING CO. (LIMITED.)

Registered under the Companies Acts of 1862, 1867, and 1877, with Limited Liability.

CAPITAL £70,000, in 3500 Shares of £20 each.

The Shares are divided into 1750 Preference Shares (Series A) and 1750 Deferred Shares (Series B).

The preference of A Shares are entitled to a minimum preference dividend of 15 per cent. out of the available profits in each year, after which the B Shares are entitled to a dividend up to the same rate, further profits to be divided *pro rata* between both classes of shares.

The deferred or B Shares will be issued to the vendors as fully paid in part payment of the purchase-money. The preference of A over B Shares to continue until the full amount of the capital represented by the A Shares shall have been repaid in dividends, after which this preference shall cease, and both series rank alike.

The capital represented by the A Shares, with this exception of those issued to the vendors as fully paid, as afterwards described, is payable as follows:—£4 on allotment, and the remainder in calls as required; no calls to exceed £4 in amount, or to be payable at less intervals than three months.

DIRECTORS.

BRINSLEY NIXON, Esq., 3, Stanhope-terrace, Hyde Park.
JAMES R. STUART, JUN., Esq., 6, Lonsdale-street, Dublin.
Colonel CHARLES WYNNE, South Hill, Sydenham.
(With power to add to their number.)

MANAGING DIRECTOR AND ENGINEER—A. A. WYNNE, Esq., C.E.

BANKERS—Messrs. MARTIN AND CO., 68, Lombard-street, E.C.

SOLICITORS—Messrs. FOWLER AND CO., 3, Victoria-street, S.W.

SECRETARY—Mr. EMILE GARCKE.

OFFICES—5, WESTMINSTER CHAMBERS, S.W.

This company has been formed for the purpose of acquiring and working a mineral property in Bavaria, consisting of a very extensive deposit of lead ore which was provisionally secured for a small price, and which has since been proved by extensive trials to be of extraordinary value, and requiring only adequate development to become one of the largest sources of lead in Europe. The property is situated near Freilung, on the Nuremberg Weiden Railway. Its nature, as well as the circumstances which enabled the vendors to acquire it, are fully described in the accompanying memorandum.

The right of mining for lead over practically the entire extent of the deposit, has been secured partly by concessions obtained direct by the vendors from the Bavarian Government, and partly by the purchase of previously granted concessions.

The old workings on the deposit are on an enormous scale, extending almost continuously for a length of about 4½ miles. Trials carried out upon the southern portion, which represent about one-third of the property only, have proved the existence of a band of sandstone about 30 feet thick and over a mile in length, impregnated with lead to the extent of 5 to 6 per cent. of the whole mass, and which is calculated to contain, down to a depth of 100 fathoms, more than one and a half million tons of lead ore.

The mode of occurrence of the ore, disseminated regularly through a large and continuous stratified band of proved extent, almost entirely eliminates the risk usually attendant upon lead mining where the ore occurs in lodes.

The present time is especially favourable for starting the enterprise, as not only has the property been obtained on terms which would have been impossible in more prosperous times, but the works can be carried out for little more than one-half of what they would have cost a few years ago. A still more important point is, that the calculations of profit are based on the present price of lead, which is lower than it has been at any time during the present generation, and more than 33 per cent. below the average of the last 25 years.

As this extraordinary fall in price has already had the effect of causing some of the most important lead mines to stop working, it may be safely anticipated that before long a rise in price must take place; the mines at Freilung are, however, so favourably circumstanced, that profit might still be made should the price of lead fall even 25 per cent. below present rates. The enterprise starts, therefore, from a very safe basis.

It is proposed in the first instance to develop only the southern portion of the property, and to erect works capable of treating about 540 tons of sandstone daily. The cost of development and erection of works is estimated at £17,500; the cost of production at £3 per ton, and the profit, calculating on present rates, at £2 per ton, or £10,500 on an annual production of 5400 tons of ore.

This sum represents 25 per cent. on the whole capital of the company, and is more than three times the amount required to pay the preference dividend of 15 per cent. on the A shares.

It will be seen from the memorandum that the above is altogether a minimum estimate on the assumption of the most disadvantageous circumstances, and it should not be lost sight of that under favourable circumstances there are reasonable grounds for anticipating so much larger profits that dividends of more than 100 per cent. may be realised.

Owing to the nature of the deposit, the works are of a kind which can be rapidly carried out, so that early dividends may be anticipated.

The property has been recently inspected by Professor Gumbel, head of the Geological Department and member of the Mining Council of Bavaria, and Mr. Heiser, member of the Prussian Mining Council of Bonn, the latter, from his official connection with the Mechnich Works, being especially competent to judge of the value of a property of this character. Their reports, of which extracts are appended, show that these gentlemen have given great care to the investigation, and have formed a high estimate of the undertaking.

The memorandum has been prepared by Messrs. A. A. and W. H. Wynne, who reside in Germany, and have based their calculations on the experience derived from long and successful practice in lead mining in that country.

The terms of purchase are £14,500, payable wholly in preference shares, issued as fully paid, or, at the option of the company, half in fully paid preference shares and half in cash, and 1750 deferred B shares, the £14,500 representing, as nearly as can be determined, the actual liabilities incurred by the vendors, including a sum of about £2500 spent by them on the mines for which the company take over plant and work done to an equivalent amount.

These terms show the absolute confidence of the vendors in the undertaking, as they are willing to transfer the property entirely for shares, accepting an equivalent in A shares for their cash liabilities, and receiving deferred shares only, in return for the risks incurred in testing the property, and for their interest in both the concessions they have purchased and those they have directly acquired.

The vendors are Messrs. Nixon, J. R. Stewart, jun., A. A. Wynne, and W. H. Wynne, who are also promoters of the company.

The full reports on the property and specimens of the ore, as well as the Memorandum and Articles of Association, and the vendors' contracts, may be seen at the offices of the company.

The following are the only contracts entered into before the issue of this prospectus:—

A contract, dated the 23rd day of January, 1879, between A. A. Wynne, acting for himself and the other vendors, and Emile Garcke, acting as trustee for the company.

A contract, dated the 26th day of July, 1877, and extended to 30th of June, 1879, between J. W. Burkart, of Cologne, and W. H. Wynne.

A contract, dated the 1st day of January, 1879, between Anton Leroux, of Amberg, Bavaria, and A. A. Wynne.

23rd of January, 1879.

The LIST will be OPEN for TOWN applications until noon on TUESDAY, the 11th February, and for COUNTRY applications until noon on WEDNESDAY, the 12th February.

C. H. WALKER AND CO., MINING AGENTS AND ENGINEERS, VALPARAISO AND SAN IAGO CHILE.

T. V. CLARKE AND CO., TRUNDLEY LANE, SURREY CANAL, DEPTFORD, S.E.,

ARE BUYERS OF

CALAMINE and BLENDE; ZINC and LEAD ASHES, SULPHATE OF LEAD, and OTHER METAL RESIDUES.

N.B.—Sole Manufacturer of the Palm Anti Friction Grease and Lubricating Oils for Collieries, Mines, &c.; also the Asphaltic Varnish Paint for coating outdoor Ironwork and Machinery.

R. B. HARPER, MINING ENGINEER,

Will SUPERINTEND or EXAMINE and REPORT on MINES on the PACIFIC COAST. Having had 14 years' experience in Gold and Silver Mining in Mexico, California, and Nevada. Government Mining Engineer for the Province of British Columbia.

Any communications may be addressed Room 49, Nevada Block, San Francisco, California.

INVESTMENTS IN CANADIAN PROPERTIES.

HERBERT C. JONES, M.A., BARRISTER AND ATTORNEY, SOLICITOR IN CHANCERY, 39, ADELAIDE STREET EAST, TORONTO, CANADA.

TO INVESTORS.

The general rate of interest on Mortgage Security, in which only one-third of the market value of improved farms is taken, is 6½ to 8 per cent. Investors furnished with the mortgage as well as if the property were in England. Interest paid regularly every half-year.

TO INVESTORS IN MINES.

The following properties dealt in:—
THE FIC COPPER COMPANY OF LAKE SUPERIOR.
THE GATLING GOLD AND SILVER COMPANY.
THE CROSBY SILVER MINE.

All business with Canada promptly attended to. Manitoba Lands secured.

MONDAY, FEBRUARY 17, 1879.

MR. JOHN THOMAS (Auctioneer) WILL SELL, BY PUBLIC AUCTION, on Monday, February 17th, at Twelve o'clock precisely, the WHOLE of the

MACHINERY AND MATERIALS

OF THE TRELEIGH WOOD MINE, near REDRUTH, CORNWALL, consisting of—
ONE 60 in. cylinder PUMPING ENGINE.
ONE 30 in. cylinder STAMPING ENGINE.
ONE 20 in. cylinder WINDING ENGINE.

FIVE BOILERS, with fittings; 43-head STAMPS complete, with dressing floors, burning-house, &c.; weighbridge to weigh 6 tons. PITWORK, from 12 to 17 in. Main rods; capstan and wire rope; water wheels; miners' tools; smiths' shop and tools, &c.; tram roads; ladders, &c.; wood account house (three rooms). A large quantity of TIMBER, old and new, plank, shedding, &c.; brass, iron, stores, and all the requirements of a fully appointed mine.

The whole will be offered in One Lot, and, if not sold, then in lots to suit the convenience of buyers. If not cleared out on the 17th, the sale will be proceeded with on the 18th.

To view, apply on the mine. Detailed particulars in circulars, which may be had on applying to the Secretary, T. B. LAWS, Esq., St. Andrew's House, Cornhill, London; or the Auctioneer, Redruth, Cornwall.

MR. JOHN THOMAS (of The Glebe, Redruth) has been favoured by instructions TO SELL, AT PUBLIC AUCTION, without reserve, at Tabb's Hotel, Redruth, on Friday, February 28th instant, at Six P.M. precisely.

200 (6000th) SHARES in the WEST WHEAL

BASSETT MINE,

Now standing in the books of the said Mine to the Forfeited Share Account.

The Mine is situated in the parish of Illogan, in the county of Cornwall. It is now being worked at a profit, and a small rise in the price of tin would enable it to pay large dividends; and as all well informed authorities are agreed that we shall soon see higher quotations for that metal, a very favourable opportunity is offered for investment.

For further particulars, apply to—
JOHN THOMAS, Auctioneer, Sharebroker, and Mine Machinery Valuer.
Any persons wishing to buy, but who are unable to attend the sale, can have their commissions carefully executed by writing the Auctioneer.

VALUABLE LEAD MINES IN CARDIGANSHIRE.

IMPORTANT TO MINING COMPANIES AND CAPITALISTS.

MESSRS. TOPPIS AND HARDING WILL SELL, BY AUCTION, at the Mart, Tokenhouse-yard, on Thursday, 20th February next, at Two o'clock precisely, the VALUABLE MINING PROPERTY known as the

POWELL SILVER-LEAD MINES,

Situate in the county of CARDIGAN, eleven miles from Aberystwith, affording rich lodes of fine ore, yielding a considerable and steady output, and capable of extensive development.

The mines are held under leases having an unexpired term of about 14 years at reasonable royalties.

There are powerful WATER WHEELS and ample MACHINERY for pumping, drawing, and crushing, with dressing plant and all needful buildings, including a convenient manager's house; with office, smiths' and carpenters' shops, and shed for workpeople, forming a complete going concern, all in good working order.

Full information, with permission to view, may be obtained on application to Capt. BRAY, Pontnewydd, near Aberystwith; and particulars may be had of J. W. LONGBOTTOM, Esq., Solicitor, Halifax; and of the Auctioneers, 16, St. Paul's Churchyard, E.C.

PRELIMINARY NOTICE OF SALE.

BOWERS' ALLERTON COLLIERIES (LIMITED), YORKSHIRE.

In the High Court of Justice—Chancery Division.

MR. JOHN HEPPER (of the Firm of HEPPER AND SONS, Auctioneers, Leeds) WILL SELL, BY AUCTION, by Order of His Lordship the Master of the Rolls, SHORTLY, the

VALUABLE LEASEHOLD COLLIERIES,

FIXED PLANT, BUILDINGS, LOCOMOTIVES, ROLLING STOCK, SEA AND CANAL BOATS, TOOLS, MATERIALS, and EFFECTS belonging to the above company, and situate at Great and Little Preston Astley and Swillington, about seven miles from Leeds, two and a half miles from the Woodlesford Station, two miles from the Methley Station on the Midland Railway, and close to the North-Eastern Company's Railway from Leeds to Castleford and Pontefract, to which there are sidings, and by which there is communication with the Great Northern System.

Index plans and particulars and conditions of sale are in course of preparation, and may be had fourteen days prior to the sale (of which further notice will be given) of Messrs. PATTERSON, Wigg, and Co., Solicitors, 11, Queen Victoria-street, London; of Messrs. DEB and Co., Solicitors, Leeds; of Messrs. DOWELL and Co., Solicitors, 6, New-square, Lincoln's Inn, London; of Messrs. LAMBERT, PITCH, and SHAKESPEARE, Solicitors, 8, John-street, Bedford-row, London; of GEORGE ARMSTRONG, Esq., Solicitor, Newcastle-on-Tyne; of Messrs. SHUM, CROSSMAN, and Co., 3, King's-road, Bedford-row, London; and of Messrs. HEPPER AND SONS, Auctioneers, Leeds.

IN LIQUIDATION.

NEW WILDBERG MINES, RHEINISH PRUSSIA.

TO BE SOLD (as a going concern), BY PUBLIC AUCTION, at the Mart, Tokenhouse-yard, Lothbury, on Wednesday, the 26th day of February, 1879, by Mr. HERBERT H. FULLER, of No. 1, Queen Victoria-street, E.C., the MINING PROPERTY known as

THE WILDBERG SILVER, LEAD, AND COPPER

MINES,

Situate in RHEINISH PRUSSIA, about forty miles north-east of Cologne, and twelve miles from Waldbröl Railway Station.

It consists of MINING CONCESSIONS in perpetuity, having an area of 1,684,687 square metres. Concessions of water for power purposes. Freehold and other lands about 140 acres, with PUMPING, WINDING, DRESSING MACHINERY, and MINE PLANT. Numerous buildings and extensive smelting-works.

Full particulars may be had on application to the Liquidator, UPFIELD GREEN, Esq., at the offices of the company, No. 2, Coleman-street Buildings, Moorgate-street, E.C.; or to the Auctioneer, 1, Queen Victoria-street, London, E.C.

TO BE SOLD (CHEAPLY) THREE of GREEN'S PATENT JIGGERS, equal to new, with DRIVING SHAFTS and PULLEYS, all complete; also a large quantity of other MINING MACHINERY. Apply to Mr. G. WILLIAMS, Merchant, 6 and 7, Baker-street, Aberystwith, South Wales.

FOR SALE, at WEST MARIA and FORTESCUE:—

A 16 inch AIR COMPRESSOR and RECEIVER, by MacClellan, Glasgow, with 14 inch ENGINE, 166 fathoms 2½ inch lap-welded STEAM TUBING, and 20 fathoms 1½ inch ditto.

ONE MCKEAN'S ROCK DRILL, with all necessary appliances, as good as new.

ONE 56 inch PUMPING ENGINE, with TWO BOILERS.

ONE 24 inch WINDING ENGINE, Cornish Crusher, Brunton's Calciner. A quantity of from 5 to 14 inch PUMPS, with all attachments, complete. Also, 150 fathoms of good 14 inch CAPSTAN ROPE.

Apply to—

WM. MATHEWS, ENGINEER, TAVISTOCK.

FOR SALE, a NEW 70 inch cylinder CORNISH BEAM PUMPING ENGINE, 10 ft. stroke in cylinder and 9 ft. in the shaft, with steam case, metallic piston, and wrought gudgeon. The false cover, perpendicular pipes, weigh posts, working and nozzle gear all fitted bright. A strong substantial well made engine, complete, including cast iron casings for top and bottom nozzles with tight covers, holding down bolts and wrought iron caps and bolts for connection to main rod.

Apply to WILLIAMS'S PERRAN FOUNDRY COMPANY, Perranarworthal, Cornwall. Dated Jan. 29, 1879.

18 H.P. PORTABLE STEAM ENGINE, with link motion reversing gear, ready for delivery; also gear to wind and pump.

A 9-h.p. VERTICAL STEAM ENGINE, with link motion, reversing gear (winding drum if required).

A 6-ft. PAN MORTAR MILL, VERTICAL ENGINE, and BOILER, with carriage and travelling wheels.

Apply to—

BARROWS AND STEWART, ENGINEERS, BANBURY.

HORIZONTAL ENGINE, 15-horse power, strong, and well finished, with fly-wheel, wrought crank shaft 5 in. diameter, and massive box bed; suitable for winding or general purposes; quite new. Price £70.

HORIZONTAL ENGINE, 8 in. cylinder, beautiful and most improved design, new and complete, with pump and governor. £38.

ALEXANDER SMITH,

ENGINEER, DUDLEY, WORCESTERSHIRE.

THE BIRMINGHAM RAILWAY CARRIAGE AND WAGON COMPANY (LIMITED)

MANUFACTURE RAILWAY CARRIAGES AND WAGONS OF EVERY DESCRIPTION, for HIRE and SALE, by IMMEDIATE or DEFERRED PAYMENTS. They have also wagons for hire capable of carrying 6, 8, and 10 tons, part of which are constructed specially for shipping purposes. Wagons in working order maintained by contract.

MANUFACTURERS also of IRONWORK, WHEELS, and AXLES.

EDMUND FOWLER, Managing Director.

WORKS, SMITHWICK, BIRMINGHAM.

THE SANDYCROFT FOUNDRY AND ENGINE WORKS COMPANY (LIMITED),

NEAR CHESTER

(Late the MOLD FOUNDRY COMPANY. Established 1838)

MAKERS OF

MINING MACHINERY,

CORNISH PUMPING, WINDING, AND EVERY OTHER DESCRIPTION OF ENGINE,

PITWORK, BOILERS, FORGINGS,

WATER WHEELS, ORE CRUSHING, STAMPING, AND DRESSING MACHINERY,

GOLD AND SILVER AMALGAMATING MACHINERY,

MINING TOOLS,

ROCK DRILLS, AIR COMPRESSING ENGINES, and all the necessary accessories for MACHINE BORING.

SPECIAL ATTENTION given to MACHINERY for FOREIGN MINES.

SECOND-HAND MINING MACHINERY FOR SALE.

LONDON AGENTS:—MESSRS. JOHN TAYLOR AND SONS,

6, QUEEN STREET PLACE, SOUTHWARK BRIDGE, E.C.

HENRY WIGGIN AND CO.

(LATE EVANS AND ASKIN),

NICKEL AND COBALT REFINERS BIRMINGHAM.

Mr. E. JACKSON,

Associate of the Royal School of Mines,

ANALYST AND ASSAYER.

Assays or Complete Analyses made of Copper, Silver, Lead, Zinc, Tin, and other Ores. ASSAYING TAUGHT.

108, QUEEN VICTORIA STREET, LONDON, E.C.

£5. £10. £20. £50. £100.

ALEX. FROTHINGHAM AND CO.,

BANKERS AND STOCK BROKERS,

No. 12, WALL STREET, NEW YORK, U.S.A.,

Make INVESTMENTS in STOCKS on the NEW YORK STOCK EXCHANGE in amounts from £5 upwards, which frequently pay from five to twenty times the amount invested every thirty days. Explanatory Circular and Reports sent free by mail.

MEXICO, NEW MEXICO, ARIZONA, UTAH, NEVADA AND CALIFORNIA.

F. M. F. CAZIN,

MINING AND CIVIL ENGINEER,

At BERNALLILLO, NEW MEXICO, U.S. OF AMERICA,

Has 24 years' experience in Mining and Smelting, and 10 years' experience in American Business and Law, offers his services at moderate charges for Reporting on Mining and other Property in any of the above-named States or Territories; gives correct, safe, and responsible advice as to securing full titles and possession; and, as to best mode of utilising the property, will assist in settling existing difficulties by compromise, and in disposing of developed mining property when held at real value; offers his assistance for securing undeveloped mining properties at home prices. As to care taken in reporting, reference is made to the Mining Journal Supplement, April 1, 1878, containing report on property of the Maxwell Land Grant and Railway Company; as to technical standing, to the prominent men of the trade—compare Mining Journal of Aug. 30 and Nov. 31, 1872, and New York Engineer and Mining Journal, Feb. 28, 1874.

£2000 SECURE ONE QUARTER INTEREST IN A PAVING COPPER MINING and SMELTING BUSINESS.

The UNDERSIGNED has succeeded in securing the right of working, and an interest in, a COPPER MINE, which by actual development and test has proved capable of an almost unlimited production of ore, containing in the great average more than 10 per cent. copper. He has ready on the ground 1000 tons of ore, a good steam-engine and boiler, a good blower, 7000 bushel of charcoal, and all the material requisite for the construction of furnaces, and a good house to live in. Has a coal mine of his own at eight miles distance, and the right for timber on large tract of land, and can turn out copper in less than a month, at a cost of \$150 per ton, including freight to New York. But he desires, for two good reasons, a PARTNER:—

1.—He is isolated, no man of culture being on less than 18 miles distance, and the nature of the business requires the presence of two partners.

2.—He needs the £2000 in part to pay therewith a balance on his interest, so as to begin clear a debt, and in part to working capital to stock the sale store with.

Mr. E. MIDDLETON, of this Journal, will on personal application give some more particulars, and is also authorised to select among applicants.

No technical education is required, but a gentleman of commercial ability would be preferred. No time should be lost in making application, as the selection will be telegraphed within a few days.

F. M. F. CAZIN,

Copperfield, near Bernallillo, New Mexico, U.S.A.

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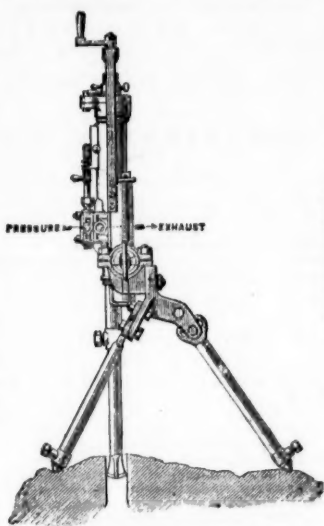
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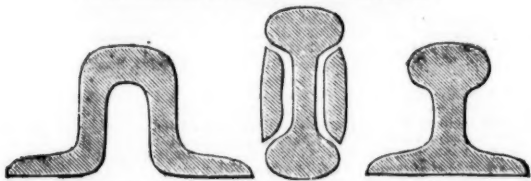
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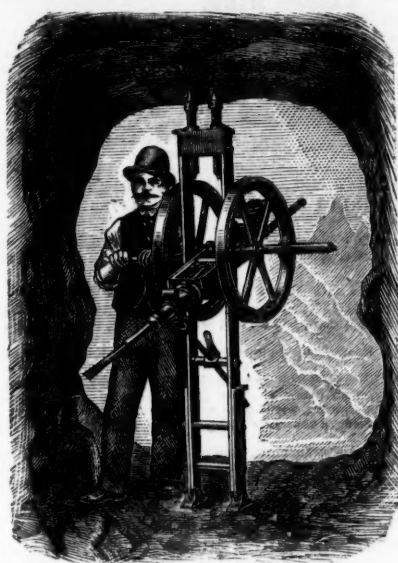
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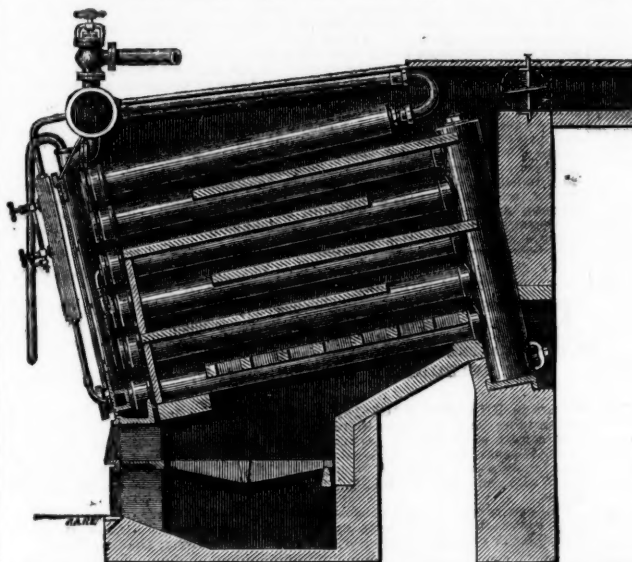
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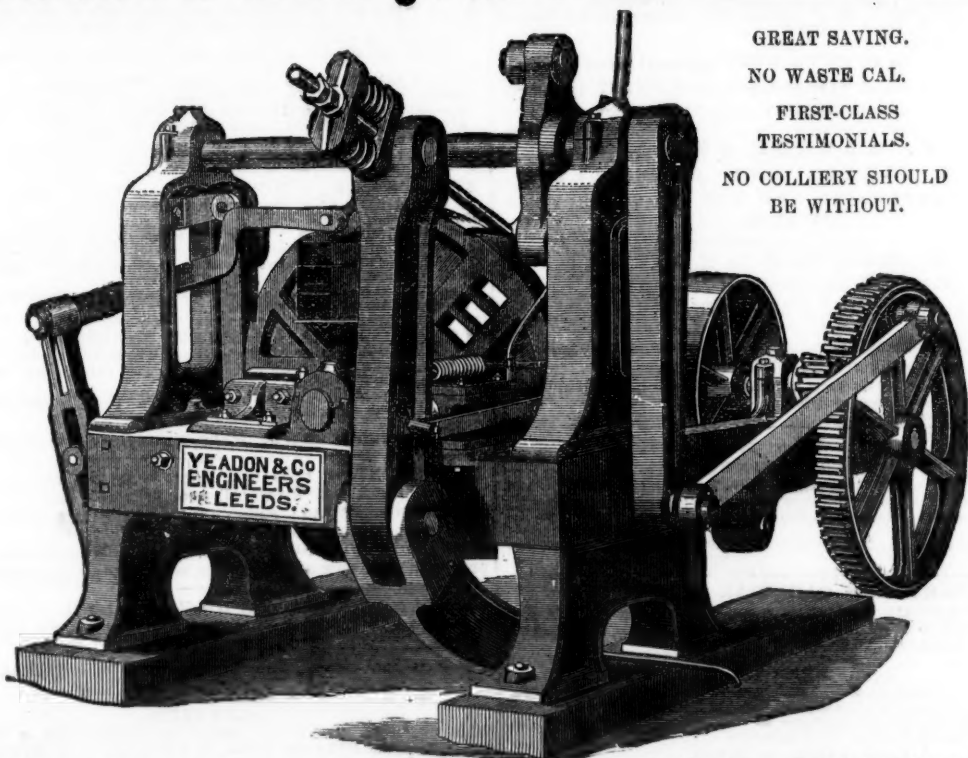
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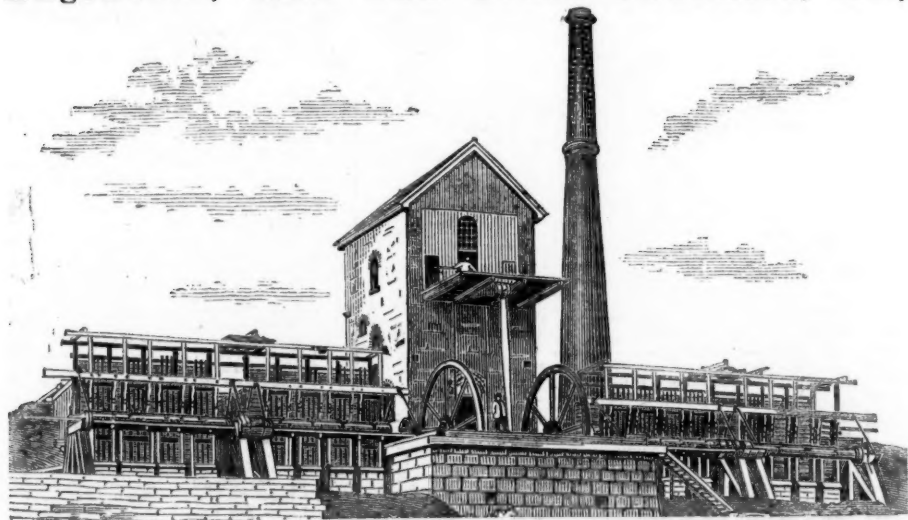
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1000	Caron, s, Cardigan	53 76	2 1/4	1 1/2	0 4 00	0 40	Oct. 1878
400	Cashwell, s, Cumberland	2 10 0	—	—	0 308 00	0 308	Feb. 1874
2450	Cook's Kitchen, s, Illogan	38 4 9	—	—	1 9 60	1 96	Jan. 1874
240	Davon G. Conso, s, Tavistock	1 00	—	—	11 17 00	0 11	Jan. 1874
4998	Dolowath, s, s, Camborne	10 14 10	1 1/4	1 1/4	116 15 00	0 116	July 1877
5000	East Black Craig, s, s, Scotland	5 00	—	—	113 13 00	0 113	July 1877
300	East Darnley, s, Cardiganshire	52 00	—	—	0 10 00	0 10	Feb. 1878
6400	East Pool, s, s, Illogan	0 9 9	—	—	255 10 00	0 255	Feb. 1878
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615	Great Laxey, s, s, Isle of Man	4 00	—	—	0 6 00	0 6	Aug. 1878
615	Great Laxey, s, s, Isle of Man	4 00	—	—	0 6 00	0 6	Aug. 1878
6000	Green Hurth, s, s, Penryn	5 18 6	—	—	24 10 00	0 24	Jan. 1878
20000	Grogwin, s, s, Cardigan	0 00	—	—	0 1 60	0 1	Jan. 1878
9830	Gunnalake (Olters), s, s	2 00	—	—	2 20 00	0 2	May 1876
60000	Holmbush, s, s, s, Callington	1 00	—	—	0 14 10 00	0 14	Oct. 1878
2800	Isle of Man, s, s, Isle of Man	25 00	—	—	0 4 60	0 4	Sept. 1878
20000	Leadhill, s, s, Lancashire	6 00	—	—	82 50 00	0 82	Sept. 1878
400	Leiburn, s, s, Cardiganshire	18 15 0	—	—	0 15 00	0 15	Mar. 1878
10000	Llanidloes, s, s, Montgomery	8 00	—	—	587 10 00	0 587	Aug. 1878
9000	Marke Valley, s, s, Llanidloes	5 3 6	—	—	0 9 00	0 9	Nov. 1876
10000	Mellandur, s, s, Hayle	2 00	—	—	7 15 00	0 7	Jan. 1878
9000	Minera Mining Co., s, s, Wrexham	5 00	—	—	0 8 00	0 8	Jan. 1878
20000	Miner Co. of Ireland, s, s, s	7 00	—	—	87 17 00	0 87	Nov. 1878
1024	North Bury, s, s, Chacewater	1 14	—	—	23 17 00	0 23	Jan. 1878
1029	Pant-y-Moyn, s, s, Wales	2 1 0	—	—	1 0 00	0 1	Jan. 1878
30000	Pant-y-Moyn, s, s, Wales	2 1 0	—	—	1 0 00	0 1	Jan. 1878
8000	Pedra-an-dre, s, s, Redruth	0 8 8	—	—	0 30 00	0 30	Dec. 1878
8000	Pennant, s, s, North Wales	3 5 6	—	—	0 9 00	0 9	Aug. 1877
48798	Penrith, s, s, s, Gwynedd	5 00	—	—	3 13 60	0 3	July 1878
18000	Prince Patrick, s, s, Holywell	1 00	—	—	0 2 80	0 2	Mar. 1878
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1793	West Pollice, s, s, Day	15 10 0	—	—	1 19 90	0 1	Oct. 1878
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2048	Wh. Frances, s, s, Illogan	18 0 0	—	—	0 12 00	0 12	Jan. 1878
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18000	Birdseye Creek, s, s, California	4 00	—	—	0 14 00	0 14	Nov. 1878
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34438	Cedar Creek, s, s, California	8 00	—	—	0 8 00	0 8	Dec. 1878
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18000	Chicago, s, s, Utah	10 00	—	—	0 2 80	0 2	Aug. 1878
68000	Colorado United, s, s, Colorado	10 00	—	—	0 18 00	0 18	June 1878
10000	Copago, s, s, Chile	8 00	—	—	0 2 80	0 2	Aug. 1878
10000	Don Pedro North of the Key	18 15 0	—	—	0 18 00	0 18	Jan. 1878
28500	Eberhardt & Aurora, s, s, Nevada	0 18 0	—	—	7 11 18	0 7	May 1878
70000	English & Australian, s, s, S. Aust.	10 00	—	—	2 8 90	0 2	Mar. 1878
80000	Flagstaff, s, s, Utah	2 10 0	—	—	1 18 00	0 1	Dec. 1877
25000	Fortuna, s, s, Spain	10 00	—	—	2 18 90	0 2	Oct. 1877
25000	Frontino & Bolivia, s, s, New Gran.	2 00	—	—	4 20 00	0 4	Mar. 1877
8000	Gold Run, s, s, s, New Gran.	1 0 0	—	—	7 30 00	0 7	Oct. 1878
100000	Herules and Roe, s, s, Colo. fr. pd.	2 00	—	—	0 2 60	0 2	Sept. 1878
48000	Kapunda Mining Co. Australia	1 30	—	—	0 2 80	0 2	Sept. 1878
20000	Last Chance, s, s, Utah	8 00	—	—	0 2 80	0 2	Jan. 1878
12000	Llaneros, s, s, Spain	8 00	—	—	0 14 00	0 14	Oct. 1878
65000	Llaneros, s, s, Spain	8 00	—	—	0 14 00	0 14	Oct. 1878
787	Llaneros, s, s, Spain	2 00	—	—	0 14 00	0 14	Oct. 1878
5000	Mam. Copper, s, s, s, 10,000 sh. issued	3 10 0	—	—	0 11 60	0 11	Oct. 1878
6000	Mountain Chief, s, s, Utah	10 00	—	—	0 11 60	0 11	Oct. 1878
1000	Pontigbaud, s, s, France	10 00	—	—	0 8 00	0 8	Dec. 1878
100000	Port Phillip, s, s, s, 10,000 sh. issued	20 00	—	—	0 4 00	0 4	Dec. 1878
54000	Richmond Consol., s, s, Nevada	1 00	—	—	26 18 00	0 26	Jan. 1878
40000	Santa Barbara, s, s, Brazil	5 00	—	—	6 11 60	0 6	Nov. 1878
120000	Santa Barbara, s, s, Brazil	5 00	—	—	6 11 60	0 6	Nov. 1878
80000	Scottish Austral. Mining Co., New	1 00	—	—	0 5 90	0 5	Nov. 1878
129500	Sierra Buttes, s, s, California	0 10 0	—	—	15 per cent.	15	Nov. 1878
140825	S. B. Pumas Eureka	2 00	—	—	15 per cent.	15	Nov. 1878
80000	South Aurora, s, s, Nevada	2 00	—	—	15 per cent.	15	Nov. 1878
235000	St. John del Rey (25000 sh. issued)	5 00	—	—	2 10 00	0 2	Oct. 1878
20000	Tolima, s, s, s, America	5 00	—	—	0 14 20	0 14	Oct. 1878
25000	Tolima, s, s, s, America	5 00	—	—	0 14 20	0 14	Oct. 1878
15000	Western Union, s, s, New Granada	1 00	—	—	0 11 60	0 11	Mar. 1878
21000	W. Prussian (50000 pref. sh. 10s. pd)	10 00	—	—	0 12 00	0 12	Jan. 1878

NON-DIVIDEND FOREIGN MINES.

Shares.	Miner.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last wk.
12000	Argentine, s, Argentina Republic	8 00	—	—	—	—	—
8000	Bellavista, s, Peru (210 shares)	10 00	—	—	—	—	—
30000	Blue Tent, s, s, California	5 00	—	—	—	—	—
10000	Buena Ventura, s, s, Llanos de las Infantas, Spain (22 sh.)	5 00	—	—	—	—	—
49935	Chontales, s, s, Nicaragua	2 50	—	—	—	—	—
18000	Condes de Chile, s, s	2 00	—	—	—	—	—
3500	English Austral. s, s, Victoria	5 00	—	—	—	—	—
100000	Eschequer, s, s, California	1 00	—	—	—	—	—
40000	Holcomb Valley, s, s, California	1 00	—	—	—	—	—
20000	Hornachos, s, s, Spain	1 00	—	—	—	—	—
12000	Hultafors, s, s, Orebro, Sweden	10 00	—	—	—	—	—
20000	Imperial Consolidated, s, s, Utah	5 00	—	—	—	—	—
7500	Isabelle, s, s, California (220 shares)	10 00	—	—	—	—	—
100000	I. L. s, s, California	5 00	—	—	—	—	—
60000	Javali, s, s, Nicaragua	1 00	—	—	—	—	—
3500	La Mancha, s, s, Newfoundland	2 00	—	—	—	—	—
12000	Llaneros, s, s, Viscaya, Spain (22 shares)	10 00	—	—	—	—	—
75000	Malabar, s, s, Colombia (27150 shares)	1 15 0	—	—	—	—	—
40000	Malpas, s, s, Colombia (27150 shares)	1 15 0	—	—	—	—	—
12000	Menzenberg, s, s, Germany	1 00	—	—	—	—	—
488	New Bensberg, s, s, Germany	1 00	—	—	—	—	—
6000	New Quebrada, s, s, Venezuela	5 00	—	—	—	—	—
3000	New Zealand Kapanga, s, s, Coromandel	5 00	—	—	—	—	—
50000	Oregon, s, s, Oregon, U.S. (preference shares)	5 00	—	—	—	—	—
50000	Panama, s, s, Panama (20000 debentures)	4 00	—	—	—	—	—
25000	Pitangui, s, s, Brazil (incl. 6000 sh. 21 fully paid)	4 00	—	—	—	—	—
25000	Placerville, s, s, California	5 00	—	—	—	—	—
50000	Providence and New Rosario, s, s, Mexico	2 00	—	—	—	—	—
40000	Ravenscliff, s, s, New Zealand; s, s, South Australia	1 00	—	—	—	—	—
50000	Rica, s, s, Colombia	1 00	—	—	—	—	—
22,181,000	Rio Tinto, s, s, Huéla, Spain	0 50	—	—	—	—	—
60000	Rosa Grande, s, s, Brazil (21 shares)	1 00	—	—	—	—	—
30000	Rosa Grande, s, s, Brazil (21 shares)	1 00	—	—	—	—	—
3200	Sentinel, s, s, Arizón, France	1 00	—	—	—	—	—
10000	Silver Plume, s, s, Colorado	1 00	—	—	—	—	—
30000	Tecoma, s, s, Utah	1 00	—	—	—	—	—
43174	United Mexican, s, s, Mexico	10 00	—	—	—	—	—
14000	Utah, s, s, Utah	10 00	—	—	—	—	—
50000	Verneberg, s, s, Rheinbreitbach, Germany	29 00	—	—	—	—	—
15000	Yorke Peninsula, s, s, South Australia	2 00	—	—	—	—	—
54800	Yorke Peninsula, s, s, South Australia	2 00	—	—	—	—	—

Have made calls since last dividend was paid.

FOREIGN AND MISCELLANEOUS STOCKS, BONDS, LOANS, AND TRUSTS.

MISCELLANEOUS STOCKS, BONDS, LOANS, AND TRUSTS.				
	Closing Prices		Closing Prices	
Argentina, 1868 6 percent.	68 1/2	69 1/2	Foreign and Col. Gov. Trust, 6 p. st.	73 1/2
Bolivia, 6 percent.	27	28	Do., 6 percent, 2d issue	80 65
Brazilian, 1868 6 percent.	21	43	Do., 6 percent, 3d issue	80 65
Chilian, 1868 6 percent.	56	59	Do., 1872, 4th issue	55 60
City of Providence, 5 p.c. coupon bonds	88	89	Do., 1873, 5th issue	68 62
Egyptian, Gov. preference	99	101	Peruvian, 1870, 6 percent.	54 59
Do., unified debt, scrip	69	70	Do., 1872, 5 percent.	13 1/2 14
Do., 7 percent, V.M.L.	47 1/2	47 3/4	Russian, 4 1/2 percent L. Mort.	11 1/2 12
Do., 6 percent guar.	79	81	Russian, Quicksilver Mort., 6 p. st.	97 92
Do., K. Daira Sanieh	82	84	United States Mort., 6 percent.	101 103
	67 1/2	68 1/2		